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ABSTRACT

The nine articles are divided into three general topics: language, cognition, and social development. Eduardo Hernandez-Chavez discusses strategies in early second language acquisition and their implications for bilingual instruction. Eugene E. Garcia, Lento Maez, and Gustavo Gonzales examine the incidence of language switching in Spanish/English bilingual children of the United States. Arnulfo G. Ramirez reviews the assessment of the bilingual proficiency of Mexican American pupils. Edward A. De Avila, Sharon E. Duncan, Daniel M. Ulibarri, and James S. Fleming examine the issues related to predicting the academic success of language minority students from developmental, cognitive style, linguistic and teacher perception measures. Olivia N. Saracho discusses the relationship of teachers' cognitive styles and ethnicity to predictions of academic success and achievement of Mexican American and Anglo American students. The cognitive correlates of bicultural achievement motivation are discussed by Tracy C. Gray. Evie McClintock, Mariluise Prieto Bayard, and Charles G. McClintock examine the socialization of social motivation in Mexican American families. Spencer Kagan discusses social orientation among Mexican American children which provides a challenge to traditional classroom structures. The monograph concludes with a discussion by Rosita Daskal Albert of a study of Mexican American children's and teachers' perceptions and interpretations of behavior. (NQA)

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THE MEXICAN AMERICAN CHILD

LANGUAGE, COGNITION AND SOCIAL DEVELOPMENT

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Contents

PART I. LANGUAGE

PAGE

- a. Strategies in Early Second Language Acquisition and Their Implications for Bilingual Instruction —
Eduardo Hernandez-Chavez 3
- b. The Incidence of Language Switching in Spanish/English Bilingual Children of the United States — *Eugene E. Garcia, Lento Maez and Gustavo Gonzalez* 19
- c. Assessing the Bilingual Proficiency of Mexican American Pupils — *Arnulfo G. Ramirez* 43

PART II. COGNITION

- a. Predicting the Academic Success of Language Minority Students From Developmental, Cognitive Style, Linguistic and Teacher Perception Measures — *Edward A. De Avila, Sharon E. Duncan, Daniel M. Ulibarri and James S. Fleming* 59
- b. The Relationship of Teachers' Cognitive Styles and Ethnicity to Predictions of Academic Success and Achievement of Mexican-American and Anglo-American Students —
Olivia N. Saracho 107
- c. The Cognitive Correlates of Bicultural Achievement Motivation — *Tracy C. Gray* 123

PART III. SOCIAL DEVELOPMENT

- a. The Socialization of Social Motivation in Mexican American Families — *Evie McClintock, Mariluise Prieto Bayard and Charles G. McClintock* 143
- b. Social Orientation Among Mexican American Children: A Challenge to Traditional Classroom Structures —
Spencer Kagan 163

CONTENTS CONT.

PAGE

c. Mexican-American Children in Educational Settings: Research on
Children's and Teachers' Perceptions and Interpretations of
Behavior —

Rosita Daskal Albert 183

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Part I.
Language

PART Ia

Strategies in Early Second Language Acquisition and Their Implications for Bilingual Instruction

Eduardo Hernández-Chávez, Ph.D.

INTRODUCTION

Much of the past work in child bilingualism has had an educational-psychological focus.¹ Educators in areas with large bilingual populations have long been concerned not only with the practical problems of how best to advance the learning of a second language, but also with the effects of bilingualism on children's intellectual functioning and the consequences for educational policies.²

In the United States, a principal interest in much of this study has been the analysis of error types in the production of English by second language learners. Many of these errors, though by no means all, are thought to derive from transfer from the learner's native language. Interference, or transfer of structure from the first language to the second, has been one of the most persistent explanations for the errors made by second language learners. It is considered by some to be the principal source of the difference between first and second language acquisition (E.G. Corder 1967). Others, though noting that transfer is not the main source of error, nevertheless consider it to play an important part in L₂ learning (See, for example, Richards 1971, George 1972, and Ravem 1968).

In recent decades, structural linguistics has developed a method of contrastive analysis that attempts to predict the kinds of interference that will be found on the basis of structural conflict and structural convergence (Lado, 1957). This methodology for the development of teaching materials and pedagogical techniques had its foundation in the theories of structural linguistics of

the 1940's and 1950's, and especially in the studies of bilingualism carried out by Uriel Weinreich (1953) and Einar Haugen (1953, 1956). These scholars showed without a doubt that inter-language transfer plays a strong role in bilingualism and that a great deal of it is indeed predictable on the basis of the structures of the languages involved.

It is important to point out, however, that the inter-language transfer described by Weinreich and Haugen influences mainly the native language and cannot be used as evidence to support second language learning processes. Most other evidence for interference in L_2 learning comes from observation—*anecdotal or otherwise*—of either adult learners or of school children learning a foreign or second language under classroom conditions. In both these cases, the learning conditions are crucially different from those in which children learn a second language in natural communicative situations. In the case of adults, there is much evidence that language learning after the age of puberty takes on qualitatively different characteristics, although it is very much an open question as to whether these differences are due to profound changes in brain function or to the vastly different motivations, opportunities, and other communicative conditions of learning. Nevertheless, it is clear that adults learn language differently from the way children do. In the case of classroom language learning by children, it also seems clear that as learning conditions become less natural, the product of learning will be less "natural."

In recent years there has been an increasing focus on the study of L_2 acquisition in naturalistic contexts. Some of this research is beginning to cast serious doubt on transfer of L_1 structures as a major principle of L_2 learning. For example, a few years ago, I presented evidence that the developing structures of Spanish-speaking children learning English showed no clear examples of the transfer of Spanish structures (Hernández-Chávez 1972). The position taken was that the learning of the syntax of the L_2 is essentially independent from the existing knowledge of L_1 . Other scholars have also argued forcefully that theories of interference in L_2 learning are based on unsure psychological foundations (Dulay and Burt 1974). The few studies of naturalistic L_2 acquisition that have been carried out thus far reveal a negligible amount of L_1 transfer.

Other work has compared the development of selected L_2 structures with the acquisition of those structures in first language learning. Studies of Norwegian, Spanish, and Japanese speaking children learning English have found very similar processes and developmental sequences as for children learning English as a first language (Raven 1968; Natalicio and Natalicio 1971, Milon 1974, Dulay and Burt 1975). From these studies, we can begin to see the general outlines of the processes involved in L_2 acquisition. In the order of acquisition of particular classes of functors and in the development of certain complex transformations, acquisition of syntax follows closely parallel paths in the learning of L_1 and L_2 .

In L_2 syntax, most of the attention has been placed on negative transfer, i.e. inhibition of learning due to interference from conflicting L_1 structures. This issue is by no means settled, and there are still major disagreements among scholars about the effects of interference. However, there remains a general assumption that positive transfer continues to be a viable principle of second language learning, i.e. that learning is enhanced by the transfer from L_1 of structures that are similar to those of L_2 .

In theories of the acquisition of semantics, this assumption becomes virtually universal. Because of this assumption and because of the generally advanced cognitive development of the second language learner, there exists the belief that the underlying meanings of the grammatical structure of the first language are automatically and completely available to the child as he learns a second language. For example, Ervin-Tripp (1974) writes,

Languages tend to have similar semantic content. By and large the major changes we find in acquisition of the mother tongue with age are related to semantic development. The older child has a fuller semantic system, so he merely needs to discover a new symbolic representation. (p. 122)

In a similar vein, Dulay and Burt (1975) make this notion quite explicit:

It seems intuitive that children who are acquiring their first language have to deal with both semantic and syntactic information. However, six, seven, and eight-year-old children learning a second language need not struggle with semantic concepts they have already acquired, such as concepts of immediate past, possession, or progressive action. Thus, one would not expect the semantic complexity of functors already acquired in L_1 to be a major determinant of the order of those functors in L_2 acquisition. (P. 212)

As these quotations suggest, it is widely held that the underlying semantic relations of language form part of a universal semantic structure and are learned but a single time as a function of the general cognitive development of the individual. In later language learning, they are presumably transferred, essentially intact, to the new language.

In this paper, I will present evidence that the semantic system of the second language is not only not transferred from the first language, it is approached by the child as a totally novel entity whose categories and functions must be learned on their own terms and without direct reference to those of the first language.

The semantic system we are concerned with is a specifically linguistic system. It is distinct from other systems of concepts that may include beliefs or numerical systems or such things as shape, distance, and spatial configurations, etc. More crucially, the linguistic semantics are distinct from such concepts as things, qualities, and time, and from such relations as actors, actions and things acted upon. Many of these concepts have their analogues in linguistic functions such as nouns, verbs, and adjectives, or subjects, verbs, and predicates, or tense and number.³ However, they are not identical. It is the latter linguistic concepts that are the focus of our study.

The evidence to be presented is from the developing speech of a three-year-old Mexican American child learning English as a second language. The data consist of natural spontaneous speech plus detailed contextual observations collected over a sixteen-month period in a day care center in Oakland, California. The analysis presented here is on the first nine months of that record.

Several lines of evidence will be offered, all converging on the central issue of autonomous development of the child's syntactic-semantic system in the second language versus the transfer of structure from the native language. This evidence will be of three kinds:

1. *The systematic and increasingly complex development of the basic sentence relationships in English.* The orderly emergence of semantic structure is predicted by a theory of autonomous development but not by a theory of transfer. Transfer theory holds that existing semantic functions are immediately available for use by the neophyte L₂ learner. Thus, given appropriate communicative conditions, any semantic function might be expressed at any time in the L₂ learning process, and no orderly development of these functions would be evident.

Holophrastic Speech. In the first two months, the child's spontaneous English production was limited to single-word utterances of the type that have come to be known as holophrases. The child, whom we will refer to by his nickname "Güero," also produced longer utterances during this period, but in every case these were either combinations of Spanish and English or were shown to be imitations or other types of non-spontaneous forms.

There has been considerable discussion in the child language literature about the nature of holophrastic utterances, in particular as to whether they can be said to have internal structure (Leopold 1939-1949, de Laguna 1963, Bloom 1968, Greenfield 1968, Price 1968, Menyuk 1969). Most recent work suggests that holophrases are semantically complex and are not merely expressive entities.

The present study also points strongly to the analyzability of the holophrase and its semantic complexity. Since it is not the purpose of this paper to discuss this issue, we will not present the evidence that has led to this conclusion. However, it is important to note that, in addition to the one-word utterances in question, the evidence consisted of descriptions of the non-linguistic context of the child's speech, the speech directed toward the child, the child's own actions and gestures, and other speech produced by the child in the context of the holophrase.

Taking these various kinds of evidence into account, it is quite clear that each holophrase has a semantic structure beyond the referential meaning of the word itself. Thus, we are able to distinguish sharply among the major sentence functions, "declarative", "question", and "command". Moreover, nouns and pronouns may function as predicates and as objects, and produce multiple-word utterances.

The Emergence of Syntax. By the end of Güero's ninth week at the Day Care Center, we are able to identify his first use of fully spontaneous and productive combinations of more than one word. These represent the beginnings of his development of English syntax. It is of some interest to note that for the first several weeks, Güero's multiple-word utterances express no new semantic functions at all. This is extremely similar to the process of development of syntax and semantics in first language learning reported by Patricia Greenfield (1968). Her subjects first acquired holophrastically many of the

TABLE 1
Time of First Productive Use of English Semantic Functions

WEEK	SEMANTIC FUNCTION
5	Imperative Declarative Predicate Direct Object
9	Subject Question Demonstrative (this, that) Possessive (mine)
13	Locative (here, in-here, there)
15	1st person (I)
16	2nd person (you)
17	Negative
19	Mass quantity (more) 3rd person (he)
21	Intention auxiliary (gonna) Definite article (the) Indefinite article (a) Inanimate 3rd person (it)
25	Copula (is) Adjective
29	Past tense
31	Indirect object Prepositions (with, under, like)
33	Count quantity (another)
38	Progressive aspect (-ing)

same grammatical relations as did Güer, and similarly used the initial syntactic learning to express these already existing relations.

Even when additional semantic relations begin to appear in the child's syntactic production, they are relatively slow to develop and involve but a handful of new semantic functions by the end of the ninth month. Table 1 shows the week by week development of the basic semantic functions in Güero's grammar for this period. This table demonstrates the gradual nature of the child's development as well as the progressive complexity of the grammatical concepts learned. The earliest learned functions re-occur repeatedly in later transcripts. However, the functions appearing later never occur spontaneously in earlier transcripts, which is taken to mean that they had not yet been learned. This is of critical importance to the central thesis of this paper since the transfer of functions already existing in the first language would preclude the necessity of learning those functions anew.

LEARNING STRATEGIES

Further evidence that the semantic functions expressed by the child have in fact undergone a learning process lies in the systematic utilization of a set of strategies for learning. These strategies consist in large part of the use of utterances that are not fully productive English syntactic constructions as a method for testing the semantic possibilities of a category being learned. Examples of such non-productive utterances are direct imitations, utterances that are partly imitative and partly spontaneous, and combinations of Spanish and English forms within the same sentence. We can add to this class of utterances the holophrases, although these are fully spontaneous. In this section, we will describe how each of these types of utterances serves as a testing ground for the semantic functions the child is acquiring, and in doing so act as a set of learning strategies.

Holophrases. We have previously seen that in the first several weeks of the development of overt syntax, no new semantic relations were used that had not already been acquired by means of holophrases. That is, the major sentence relations such as subjects, objects, locatives, and predicates were first established holophrastically and only later were combined as syntactic constructions. Additionally, the semantic categories whose use was restricted to particular functions in the holophrase, had the same restrictions in syntactic constructions. For example, the 1st and 2nd person possessive pronouns appeared holophrastically as predicates only. When they appeared in syntactic constructions, their only function for several weeks was also as predicates.

After the introduction of syntax, new semantic functions continued to be introduced via the holophrase, to be marked syntactically only later. At week 13, for example, the demonstrative pronoun began to function as the direct object in holophrases. Previously, only nouns had appeared as objects. Shortly thereafter, at weeks 15 and 16, the demonstratives appeared in syntactic

constructions with that same function. Similarly, 2nd person possessives, the negative and the locative all appeared first holophrastically between week 13 and week 17. Only later did each of these come to be marked syntactically.

Of great importance for this discussion is that in no case, save for a single rather doubtful instance,⁴ is a semantic function first introduced syntactically to be followed by its appearance in a holophrase. These temporal relationships between holophrases and syntactic constructions were also noted by Greenfield (1968), as mentioned above, and comprise an important similarity between L_1 and L_2 learning. They also constitute evidence that the semantic functions in question, rather than representing existing knowledge from L_1 , must go through a distinct process of acquisition and development in L_1 .

Imitations and Quasi-spontaneous Utterances. Imitations may be of several types, including direct echoes of a model, imperfect or exact reproduction, delayed imitations, memorized routines, and partial imitations. We will consider only two major types: (1) direct echoes, whether or not they are exact or immediately follow the model—it is only necessary that there be an actual model and that the child's utterance be considered an attempt to reproduce it; and (2) utterances that are ostensibly spontaneous but which include a non-echoic portion as well as a portion that has been modeled in the immediately preceding speech to the child. These are referred to as quasi-spontaneous utterances. One feature of this type of utterance is that the child is clearly attempting to communicate an idea, whereas in the echoic utterance this is normally not the case.

Directly echoic repetitions are most numerous in the first 12-14 weeks of observation after which they become fewer. During this time, there are numerous examples of echoic utterances that have structures which do not become productive until later. For example, in week 4 the child imitates sentences in which the 1st and 2nd person pronouns function as subjects, but these are not used in syntactic constructions until week 16. Later imitations also precede productive use as, for example, the locative which occurs in imitation at week 17 and is used productively for the first time at week 23. Similarly, the child imitates the subject pronoun "it" at week 21 but does not incorporate it into a productive sentence until week 31.

Most quasi-spontaneous utterances include, besides an imitated portion, material that is not part of the model. Table 2 provides a few examples of this kind of utterance of which there are numerous instances throughout the observation period.

In each case, the non-imitated portion of the utterance represents a structure that has not yet developed into a fully productive construction. For example, the negative in the quasi-spontaneous utterance at week 5 becomes productive in week 17, while 2nd person subjects are not used productively until week 16. The noun predicate of week 9 appears first syntactically at week 22, and "I" as subject appears in week 15.

TABLE 2
Selected Quasi-Spontaneous Utterances

WEEK	ADULT OR PEER MODEL	GUERO
5	It fell. Chiqui was playing with it. Wanna play?	No fell You play?
9	Do you know what those are?	Those car.
13	Let's see it. This is Rejon.	I let's see it. No. This is no. This is Bula.
15	I no have no milk.	I drink milk.
16	What did you make?	Lookit. I make-it this.
19	No get mine.	This one's mine.
23	That Chiqui's stuff.	That Chiqui's stuff. That Chiqui's corner.

Thus, a pattern becomes evident in which the development of syntax relies heavily on the prior introduction of the syntactic category and its semantic function in non-productive forms.

Code Alternation. We can see this pattern carried even further in the use of sentences which combine forms from English and Spanish within the same utterance. These utterances, commonly referred to as code alternations, are non-productive in the sense that the English portion has not yet developed in constructions that are exclusively English. The Spanish portions, however, are considered productive for that language. Table 3 provides a few illustrations of this kind of sentence.

Code alternations are relatively rare in the early weeks, increasing in number toward the end of the observation period. As in the case of holophrases, imitations, and quasi-spontaneous forms, the relationship between the appearance of particular semantic functions in code alternations and their later appearance in English syntax draws our attention. For example, the direct object function of *house* at week 5 is not productive until week 15, and the locative of week 13 appears first in English-only sentences at week 23. Similar observations can be made about the other examples.

From these and from the examples of the other non-productive utterances, invariably the productive use is preceded by at least one, and often by several, non-productive uses. The non-productive forms serve to introduce into the child's grammar the semantic functions of the L_2 .

TABLE 3
Code Alternation in Güero's Speech

WEEK	SPANISH-ENGLISH UTTERANCE	GLOSS
5	Mira house.	Lookit the house.
9	¿Y éste? What that?	And this, what's that?
13	Ese es Chiqui here. Lookit the casa de tu mami.	That's Chiqui here. Lookit your mommy's house.
15	Gimme éste.	Gimme this.
16	This my tortilla.	This is my tortilla.
17	Yo quiero wash-your-hands.	I want to wash up.

The existence of such a strategy supports the claim that the progressive appearance of grammatical structure represents in part the acquisition and development of new semantic functions. This is so because the temporal relationship between the appearance of structure in productive and non-productive utterances would otherwise have no basis. The failure of the more advanced semantic functions to appear earlier in productive utterances would need to be considered completely fortuitous.

Possible alternative explanations for this failure of advanced functions to appear earlier are either that Güero did not know them yet in Spanish, or knowing them, that the appropriate communicative opportunities to use them did not arise. With respect to the latter point, it is essential to observe if the delay in the use of later emerging structures is the result of changes in the communicative opportunities, we must then be able to show just how those communicative opportunities have changed to permit the use of the target structures. Yet, with the obvious exception of the child's increased knowledge of English, the communicative conditions remained essentially the same throughout the observation period. Moreover, as we will show, all of these functions pre-existed in the child's Spanish and opportunities for their use did indeed arise. Nevertheless, they were expressed only in Spanish until such time as they were acquired in English. Once learned, they continued to be used in English with substantial frequency.

LI STRUCTURE

Every one of the semantic structures that shows a development progression in English is already present in the child's Spanish and, in addition, he knows many functions in Spanish that he never attempts in English. (Slobin, 1973, expresses very strong reservations about this possibility.)

In the very first observation session when Güero's English was virtually non-existent, the utterances in Table 4 were recorded.

TABLE 4
Spanish Utterances from Session One

GÜERO'S UTTERANCE	GLOSS
Es el camión.	It's the truck.
Acá está mi casa.	My house is over here.
Mira mi carro.	Look at my car.
No quiero desta.	I don't want (any of) this.
Voy a hacer una casa. Mira.	I'm going to make a house. Look.
¿Se acabó?	Did it run out?
¿Le das ése a Chiqui?	Are you going to give that one to Chiqui?
¿Qué es eso?	What is that?

In these few examples, we observe virtually all of the grammatical functions that are presented in Table 1. The three major sentence types are represented as are the major sentence functions: subject, predicate, direct object, indirect object, and locative. Additionally, we find a negative, definite and indefinite articles, a possessive, copulas, demonstratives, 1st and 2nd persons, a past tense, inanimateness, and the intentional auxiliary.

It is striking that the communicative opportunity to express these grammatical functions occurred all within a single recording session. Equally as important, it establishes beyond a doubt that most of the semantic functions represented in Table 1 exist in the child's Spanish.

In subsequent transcripts, Güero produces often and spontaneously these and other semantic function in Spanish, some of which are never attempted in English during the entire period of observation. Table 5 illustrates some of these relatively advanced functions. For example, we can observe such grammatical functions as the direct and indirect object reflexives, imperfective aspect, and optative subjunctive. Situations frequently arise in which the child finds it appropriate to use these, yet he does not attempt to express them in English, even by the end of the full sixteen month period that observations were made.⁵

CONCLUSION

In the preceding paragraphs, we have presented evidence that in the acquisition of a second language the learner develops both the syntactic

TABLE 5
Some Advanced Spanish Structures

GÜERO'S UTTERANCE	GLOSS
Se me cayó.	It fell (from my hand).
Porque tenía.	Because he (already) had some.
Por favor, póngamelo.	Please, put it on me.
Que lo meta.	(I want him to) put it in.

structures and the semantic functions essentially independent of the first language. First of all, we have described the systematic and progressive nature of the development of the semantic functions of English. This systematic aspect of Güero's learning is supported by the use of a general learning strategy whereby the developing semantics are first introduced holophrastically or in non-productive utterances and only later are incorporated into the productive syntax of the second language. Finally, we have shown that all of the semantic functions developed in English over a several month period are available in the child's Spanish at the beginning of L₂ learning. In addition, he knows and finds opportunities to use other, much more advanced functions which, in the period of observation, are never introduced in English.

Transfer theory holds that the semantic functions of language are learned but once in the acquisition of the native language and are completely available to the second language learner. The major grammatical task of the learner is to discover the syntactic properties of the language.

However, if all the learner has to do is to mark syntactically the already existing semantic functions, there is no principled reason why he should not mark any and all such functions from the beginning, even with a very rudimentary syntax. In fact, it is clear from this and other studies that even very complex semantic functions can be expressed with a minimum of syntactic structure.

In contrast, we have seen that Güero does not do this. Rather, he develops the semantics of English gradually from the most basic to the more complex functions. From this we can only conclude that he approaches the learning of English without pre-conceived notions of the semantic functions it expresses, and that he acquires the semantic structure of the language without direct reference to that of his first language.

Finally, I would like to touch briefly on some possible implications of this work for bilingual education. The principal focus of most bilingual education programs is on the development of English language skills. The acquisition of English is seen to be an important if not indispensable prerequisite for reading, for academic attainment, and generally for the socialization of the child into the

school environment. The native language of students is used as a means to teach the basic academic skills until the second language is well enough developed to carry the major burden of instruction.

A major concern of teachers, both within and outside the bilingual program, is that the development of native language skills interferes with the child's development of the second language. One source of this fear is the poor reading attainment in English of many bilingual pupils which is often attributed to native language influence. Another source is the common adherence to behavioristic models of language learning that consider transfer of structure and interference to be a major learning process.

Whatever the source, the fear is completely unwarranted. Decades of study on bilingualism have shown that children are eminently capable of learning two or even more languages without harmful effects on either.⁶ In addition, the present study shows that transfer of the basic elements of language—the semantics and the syntax—simply does not take place. This study focused on positive transfer, i.e., the transfer of similar structures that would tend to enhance learning in a second language. Nevertheless, the process and the content of the child's learning make it completely obvious that negative transfer or interference does not operate either.

Given appropriate learning contexts such as that of the Day Care Center in which Güero was learning English, children will learn a second language naturally following processes that are in many ways similar to first language learning and without influence from the native language. The fear that the native language will interfere with or otherwise inhibit second language learning is groundless and should not be used as a basis for curtailing native language instruction as is often the case in bilingual programs.

A second implication that can be drawn from this and similar work concerns the length of exposure to the second language before the child can be expected to rely on it exclusively for instruction. Current regulations and school practices tend to shift the language of instruction to English after a very short period, often after a few months and very frequently after one year in a bilingual program. The native language continues to be used, but with greatly decreased importance.

Güero was in a nearly optimum second language learning situation, spending six or seven hours daily in natural communicative context with speakers of English. Yet we have seen that at the end of nine months, although he had learned a considerable amount of English, he had hardly mastered even the most basic semantics and syntax of the language. For example, at the end of the period covered by this study, there was no evidence that he knew such structures as plurals, modal auxiliaries, or noun possession which are but a few of the most elementary structures of English. For it to be said that he controlled at least the most important of the basic structures, he would need to acquire those as well as such structures as WH-questions, compound verb tenses and aspects, relatives, adverbial subordination, and the like.

From this study, or even from inspection of Güero's transcripts for subsequent months that have yet to be analyzed, it is not possible to know the amount of time it will take to learn even moderately advanced structures. But it will certainly require several additional months of intensive contact with English.

In contrast to Güero's learning situation, which was very conducive to learning, most classroom conditions are far from adequate. It is extremely unrealistic to expect non-English speaking children to learn, in a few months or even in one or two years, sufficient English to "participate effectively" in all—or mostly—English speaking classrooms.

I recognize that Güero was but three years old at the beginning of his learning and that school-children are five years or older at the time of their introduction to the language. It is entirely possible and reasonable to expect their rate of learning to be faster, all things being equal. But this is an empirical question that is yet to be studied. Still, given the differences in learning contexts, we may reasonably conjecture that the learning rate of elementary school children will not differ greatly from that of Güero. If this is so, then bilingual educators must insist on a much more gradual transition between the introduction of English and complete reliance on it as the major language of instruction. Additionally, they must seek much more sophisticated measurements than now exist in order to determine the appropriate level of proficiency required for those immensely important skills of reading and learning of subject matter in English.

I believe we will find that the language proficiency necessary for these tasks is much more complex than we have thought. The learning required to attain this proficiency does not consist merely of mapping new surface structures onto an already well developed semantic system. The process is much more akin to that in first language learning and, the apparent ease with which children learn notwithstanding, is an involved, complex, and laborious task. *We allow the native speaker many years of continual learning to acquire the basic linguistic tools that he brings to school. We must not expect the second language learner to function effectively without at least the same linguistic opportunity.*

It is entirely possible that lack of understanding of these issues is responsible in no small way for the seeming inability of Mexican American youngsters to learn English well and for the failure of schools to teach reading and other content effectively to these children.

NOTES

1. The more strictly theoretical linguistic studies have been extremely rare. In the past, these have mainly consisted of dairy studies of the simultaneous (or nearly so) acquisition of bilingualism in very young children. In general, they are very careful descriptions of the developing bilingualism of individual children. A principal question in these studies has been the concern with the

separation of the two languages. There is general agreement that in the early stages, the child does not differentiate the two languages but instead has a hybrid system composed of elements of both. The time at which the two languages become separate is not agreed upon. Leopold (1939-1949, Vol. II, p. 175) maintains that the "hybrid system" remains undifferentiated until well into the third year, questioning Geissler's (1938) interpretation that consciousness of bilingualism occurred by the beginning of the third year. Imedadze (1967, p. 130) places the division much earlier when she reports that her Russian-Georgian subject began to distinguish the two languages as early as one year, eight months. The scant evidence from bilingual phonological development points to a unitary system that begins to become differentiated near the end of the second year. See especially Burling (1956), Vogel (1975), and Major (1976).

2. For a somewhat dated but nevertheless excellent review of these kinds of studies, see Peal and Lambert (1962).

3. Roger Brown (1957) has demonstrated that for pre-school children, there is an intimate relationship between actions and verbs and between things and nouns, though they are not identical.

4. This involved the demonstrative as the object in an imperative utterance. It first appeared at week 16, one week later than its syntactic appearance. However, demonstratives had already appeared as objects in declarative utterances by week 13, and there were several earlier examples that could be interpreted as imperative objects but without clear substantiation.

5. Evidence that the child does not attempt to express a semantic relation in English cannot, of course, consist of the mere absence of form. Monomorphemic holophrases are relational terms, and all sorts of grammatical relations can be expressed without overt marking. The analytical problem is to understand the intention of the child, and this is not a straightforward matter since the child cannot be questioned about it. All kinds of evidence must be adduced, including the physical and social contexts, what has been said to the child, the child's gestures and intonations, and the actual form of the utterance. The claim here is that Güero did not intend, and thus did not attempt to produce, particular grammatical relations in English except in a developmental order and that he did not intend and did produce these same relations from the beginning in his use of Spanish.

6. Recent work (see Skutnabb-Kangas, Tove and Pertti Toukomaa, "Semi-bilingualism and middleclass bias: A reply to Cora Brent-Palmer," *Working Papers in Bilingualism* 19:181-196, 1979) indicates that this statement must be qualified to refer to particular socio-linguistic-political learning conditions. It seems possible that a native minority language may undergo development

disruption. The L_2 may also develop differently from the way it develops among native speakers of the majority group. Nevertheless, there is no evidence that this is caused by negative influence from the minority language L_1 .

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PART Ib

The Incidence of Language Switching in Spanish/English Bilingual Children of the United States

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INTRODUCTION

Language switching is a speech act that multilinguals reportedly engage in readily. Moreover, language users themselves know little about the how, when, where, and why of this phenomenon. Sociolinguists, psychologists, and other investigators are emphasizing that languages in contact reflect intricate and complex socio-cultural situations where bilinguals command the ability to utilize two or more distinct language systems in an alternating style.

Research on bilingualism and more specifically language switching is not a new topic of research interest. The combining of different grammatical forms encoded into one form was identified as speech mixture or random intermingling by Espinosa (1911). Haugen (1956) has referred to this phenomenon as linguistic diffusion, and Weinrich (1953) viewed it as the inability to hold close to either of the forms being used. Espinosa (1957) identified four different forms of language switching: translation (*escuela alta* for *high school*); phonetic adaptation (*lonchi* for *lunch*); native morphological adaptation (*baquiada* for *backing up*); and loans (borrowings) imported intact (*balún* for *balloon*).

Lance (1969) reports that language switching is not entirely random, but rather may be due to the style of the speaker and the social setting. For example, if the social situation is conducive for informal speech behavior, sentences such as the following may be generated: "A mi me gustan los hamburgers" (I like hamburgers). In this situation, Lance might call "hamburgers" a quasi-

technical term since it has no direct equivalent in Spanish, unless one wished to consider the recently adopted term *hamburguesa*. Another example might be, "They went shopping, tú sabes." In this sentence the "tú sabes" may be stylistically equivalent to the English "you know." Lance also suggests that language switching is not necessarily due to missing lexical items since the same lexical items were found unswitched in the subject's discourse, i.e., "... lo hice en *slices*, tú sabes, en *rebanadas*." ("I did it in slices, you know, in slices.")

Gumperz and Hernández Chávez (1970) also see a very direct traditional similarity between code switching in adults. One such example might be two Mexican Americans meeting each other for the first time:

1st Man: It was nice meeting you.

2nd Man: Andale, pues (O.K. swell)

Nos vemos, ¿eh? (We will see each other again, huh?)

The "ándole pues" conveys semantic information between the two men and is called a "stylistic ethnic identity marker." However, Gumperz and Hernández Chávez (1970) stress that "while ethnic identity is important as the underlying theme," the markings by juxtaposition or code alternations are more complex than the simplified example above due to the essential variable of context. Myers-Scotton and Ury (1977) suggest that codeswitching is used as a mechanism which redefines an interaction. That is, codeswitching is an interaction mechanism employed to determine future interactions. In doing so, they suggest that codeswitching is an active response by the speaker aimed at redefining the interaction itself and serving "to shift social arenas" of verbal discourse.

Zentella's (1978) study with 7- and 8-year-old Puerto Rican school children suggests that codeswitching is diverse and appears to occur situationally as per the communicants view of the dominance (power/status) of English versus Spanish. She further reports that even at this early age, codeswitching is used for emphasis, addressee specification, elaboration, and idiomatic expressions. In younger bilingual children, language switching reportedly occurs infrequently. Garcia (1979) identified three forms of Spanish-English language switching by the mothers (caretakers) of children, 2.5 to 3.5 years of age. They were: (a) instructional—whereby information about a second language was given in the first language, e.g., "Se dice apple en inglés." (You say apple in English.); (b) translation—in which the same information was given in both languages, e.g., "This is a boy. Este es un muchaco."; (c) code-switching—which involved mixed language use not in the other two categories, e.g., "Dime qué es ésto, *first*," (Tell me what this is, *first*). He reports that switching by children was observed in less than 1% of their utterances while mothers switched during 6% of their utterances. However, about half of the switching by the mothers was due to translation and instructional language

behavior. In this mother-child context study, children tended to separate the languages being used and when switching occurred it did so primarily at the lexical level.

According to Lindholm and Padilla (1977), language switching is purportedly employed when a child lacks the appropriate word in the language being used. Furthermore, the switched word will usually be a noun, i.e., "Una vez estaba un *bird*," ("Once there was a bird") or "Yo tengo un *car*," ("I have a car"). These authors further suggest that when switching does occur, the structural consistency of the utterance is maintained. More recently, Lindholm and Padilla (1979) report that children who do switch languages appear to do so systematically and with intent:

Child: "Know what's wrong with your teeth?"

Experimenter: "What about my teeth?"

Child: "*Es chueco*." ("It's crooked." (giggling))

In this example, the child's "intent" was to exclude and make fun of the experimenter.

Structural consistency and "well formed" mixed utterances was abstracted from the subject's ability to utilize appropriately both Spanish and English phonological systems early on as well as adhering to the semantic and syntactic constraints of both languages while code-switching. In essence what appeared to be happening, at this state of the child's linguistic development, was a clearly developed "mixed form" derived from both Spanish and English. Moreover, the grammatical constraints operating on both languages resulted in sentences that adhered to a type of "codeswitching grammar." However, this style was not detrimental to the acquisition of Spanish or English grammar.

These few studies on language switching in children have provided some insights concerning Spanish-English language switching. However, the conclusions of these studies must be considered tentative due to the small sampling of both subjects and language productions studied. Moreover, they are restricted to a specific ethnic bilingual population and region. The intent of the present study was to utilize the bilingual productive data gathered nationally by Educational Testing Service from bilingual children 4 to 6 years of age who were regionally and ethnically distributed. It was this "free" language production data that provided this study with one of the first detailed analyses of Spanish and English language switching for children in different age populations and regional/ethnic groups of the United States.

METHOD AND PROCEDURES

All children who were administered either the Spanish or English version of subtest 10C (CIRCO) were initially considered as potential subjects for the

following study. Each child completed a Spanish-English receptive pretest of mild difficulty prior to administration of 10C. Therefore, each subject was considered minimally bilingual. Additionally, all children were reported by parents to be members of a home environment in which both Spanish and English was spoken. Subtest 10C of the CIRCO battery obtained a measure of "spontaneous speech." Trained examiners engaged each child in an informal conversation concerning a picture of a "neighborhood" (Spanish test picture) or "classroom" (English test picture) setting. The examiner recorded verbatim the child's commentary. (All examiners received specific training concerning the administration of this item.) It is these data which were used for the analyses performed in the present study. Subject transcripts from six regions were included:

1. West (California);
2. Southwest (Colorado, New Mexico, and Arizona);
3. Texas;
4. Midwest (Illinois);
5. East (New York and New Jersey);
6. South (Florida).

For each region, subjects were randomly selected from preschool (Headstart), kindergarten, and first grade with the following constraints: (a) 20 subjects who had taken the English test; (b) 20 subjects who had taken the Spanish test; (c) half (10) of the subjects selected reside in an urban setting (population by acre ratio of 1000/1 or higher), and half (10) of the subjects selected resided in a rural setting (a population by acre ratio of 50/1 or lower). For Midwest and East regions, no rural subjects were included in the testing. Therefore, a total of 600 separate transcripts were included in the study. (See Table 1 for overall summary of subject characteristics).

For purposes of the present analysis, language switching was divided into two categories: (a) intra-(within) and (b) inter-(between) utterance switching and the mean percent occurrence of each of these categories was calculated. An utterance was defined as one or more meaningful words which identified a complete thought or idea (Brown, 1973). *Intra-utterance switches* were defined as a change in language within any single utterance. "Yo veo a un boy," or, "I see a *guêrquito*." *Inter-utterance switches* were defined as a change in language occurring between utterances:

"I see a wagon."

"¿Donde está el nene?" (Where is the baby?)

RESULTS

The results of this study have been dealt with in a hierarchical manner. That is, general comparative results are combined and presented across regional and urban/rural groups. Then more specific results for Spanish and English-

TABLE 1.
SUMMARY OF SUBJECTS

REGION	TESTED IN SPANISH						TESTED IN ENGLISH						Σ		
	URBAN			RURAL			URBAN			RURAL			Pr-K	K	F
West (Calif.)	10	10	10	10	10	10	10	10	10	10	10	10	40	40	40
Southwest (Ariz., Colo. & N. Mexico)	10	10	10	10	10	10	10	10	10	10	10	10	40	40	40
Texas	10	10	10	10	10	10	10	10	10	10	10	10	40	40	40
Midwest (Chicago)	10	10	10				10	10	10				20	20	20
East (N. York, N. Jersey)	10	10	10				10	10	10				20	20	20
South (Florida)	10	10	10	10	10	10	10	10	10	10	10	10	40	40	40
	60	60	60	40	40	40	60	60	60	40	40	40	200	200	200

tested children are presented across grade level and urban/rural status, and finally across grade level, urban/rural status, and region.

Total Language Switching

Grade level. Total language switching merely represents the combined relative measurement of intra- and inter-utterance switching (see Figure 1). In doing so, it attempts to provide a general view of the relative incidents of switched language use as compared to non-switched language use. For Spanish-tested subjects, mean percent of total language switching was at 12% for pre-kindergarten and kindergarten subjects, then dropped slightly to 8% for first grade subjects. For English-tested subjects, pre-kindergartners' mean percent of total language switching was 15%. A decrease to 3% was observed for kindergartners and a further decrease to 1% was observed for first grade subjects. Therefore, total language switching was low (less than 15% of the total) for both groups at all ages. However, total language switching for Spanish-tested subjects did not decrease in proportion, across grade level, in comparison to the English-tested subjects.

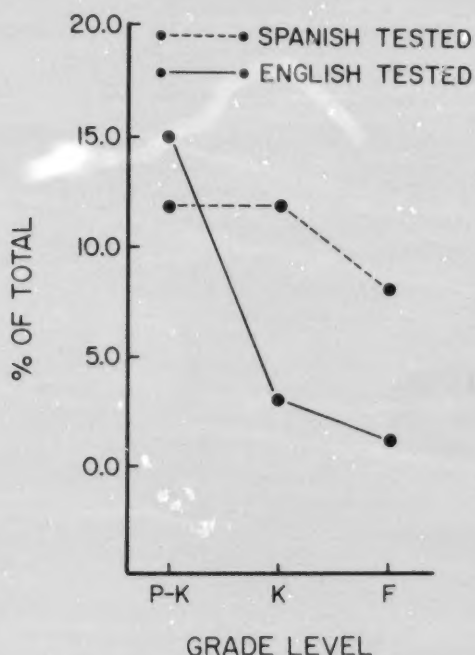


FIGURE 1. Mean Percent of Total Language Switching for Spanish and English Tested Subjects by Grade Level.

Grade level $\times$ rural/urban status. For Spanish-tested rural and urban subjects (see Figure 2), the percent of total language switching was nearly identical at pre-kindergarten (11-12%). At the kindergarten level the rural subjects' total language switching rose to 14% then decreased to 7% by first grade. The urban subjects continued a one percent decrease across grade levels. In general, then, little rural/urban differences were observed.

For English-tested rural and urban subjects, the mean percent of total language switching was identical at the pre-kindergarten level (16%), dropped to 2%-3% at kindergarten, and was almost nonexistent (1%) for both groups at first grade. For these groups, urban/rural distinctions in patterns of total language switching across grade levels were nonexistent.

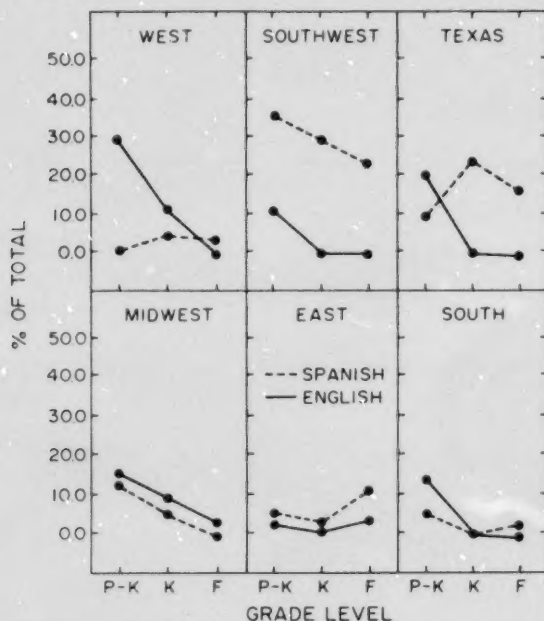


FIGURE 2. Mean Percent of Total Language Switching for Spanish and English Tested Subjects by Rural/Urban Status and Grade Level.

Grade level $\times$ regional. For Spanish-tested subjects, mean percent total language switching was extremely variable across regions (see Figure 3). The scores for West, East, and South remained under 5% across grade levels. For the Midwest, scores ranged between zero and 14%. The highest level of language switching was observed in the Southwest region: 35% at pre-kindergarten, 29% at kindergarten, and 23% at first grade. Three regions

(Southwest, Midwest, and South) were characterized by higher switching percentages at pre-kindergarten than at first grade, with the Midwest having the most dramatic decline (14% at pre-kindergarten, 6% at kindergarten, and zero percent by first grade). Two regions (Texas and East) were characterized by a relatively higher percentage of total language switching at first grade than pre-kindergarten.

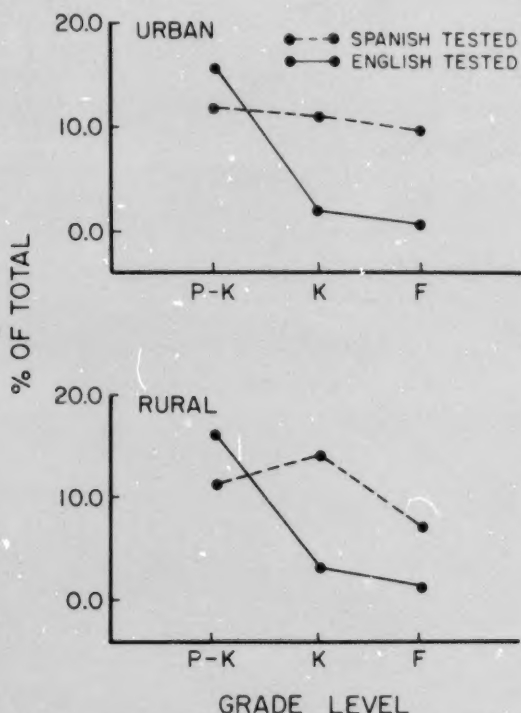


FIGURE 3. Mean Percent of Total Language Switching for Spanish and English Tested Subjects by Grade Level and Region.

For English-tested subjects, mean percent total language switching was characterized by a clearly evident downward trend across grade levels in all regions except in the East (little change was observed in this region across grade levels). Two regions, (West and Texas) had the most dramatic decline in language switching from pre-kindergarten to first grade. The West pre-kindergartners were at 29% while the first graders were at zero percent. Texas pre-kindergartners were at 20% while the first graders were at zero percent. Three regions, (Southwest, Midwest, and South) were characterized by 11%-

15% language switching at pre-kindergarten and zero or near zero language switching at pre-kindergarten, and zero or near zero language switching at first grade.

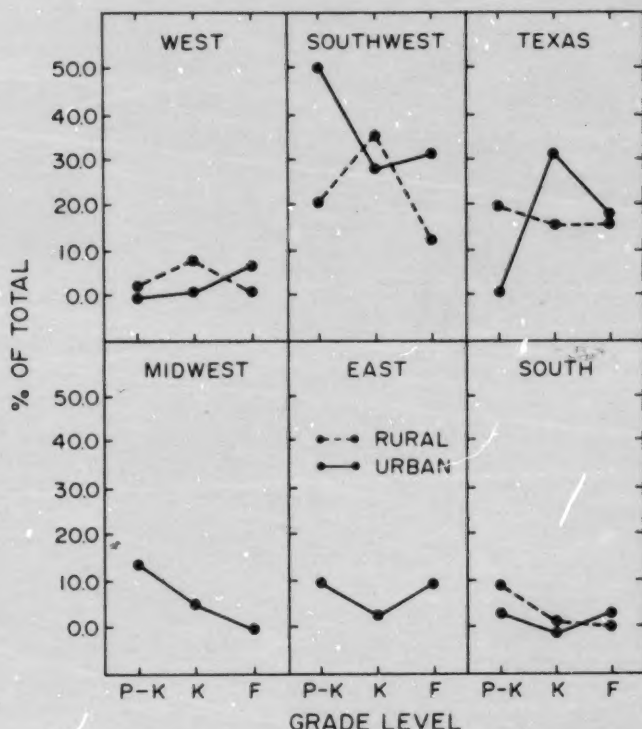


FIGURE 4. Mean Percent of Total Language Switching for Spanish Tested Subjects by Grade Level, Region, and Rural/Urban Status.

Grade level x region rural/urban status. Figure 4 presents the mean percent of total language switching for Spanish-tested subjects for each region by grade level and urban/rural site. Similarly, Figure 5 presents the mean percent of total language switching for English-tested subjects. (Recall that no rural status subjects were tested in the Midwest and East regions.)

For Spanish-tested subjects, no consistent urban/rural differences were identifiable although individual regional differences were observed. For the Southwest region, urban subjects produced twice the percentage of total language switches than their rural peers. For the Texas urban region, pre-kindergartners' percentage of total language switching was at zero, rose drama-

tically to 30% at kindergarten and decreased to 17%, approximating their rural peers by first grade. West and South urban/rural subjects were relatively equal in their total language switching across all three grade levels. Percent total language switching was generally consistent across grade levels in the East region while the mean percent in the Midwest region decreased from 14% for pre-kindergartners to 6% for kindergartners and zero for first graders.

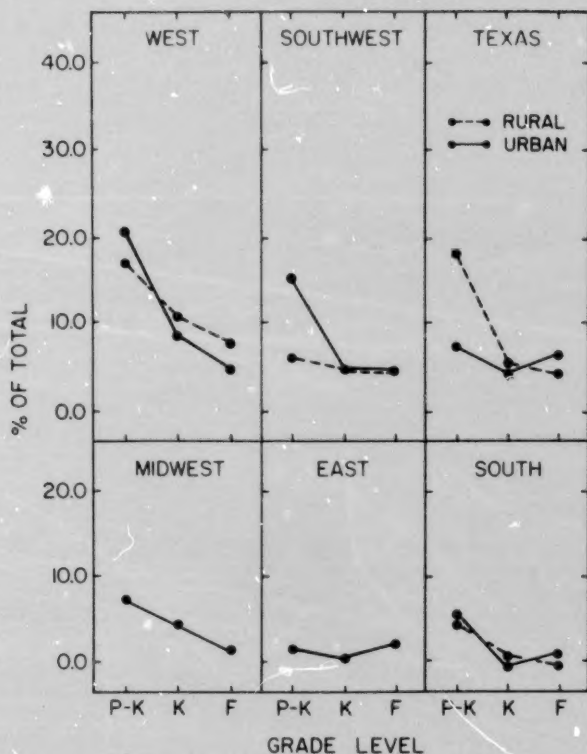


FIGURE 5. Mean Percent of Total Language Switching for English Tested Subjects by Grade Level, Region, and Rural/Urban Status.

For English-tested subjects (Figure 5), both urban and rural scores were characterized by a downward trend across grade levels with no identifiable differences across regions. The only exceptions were: (1) the Southwest urban pre-kindergartners who switched much higher than their rural peers (21% compared to 2%) and, (2) the Texas rural pre-kindergartners who switched much higher than their urban peers (28% compared to 6%).

Summary of Total Language Switching

For Spanish-tested subjects, regional differences were observed in conjunction with little urban/rural variability within regions. Both rural and urban subjects from West and South regions produced little (0-9%; $\bar{x}$ = 7%) total language switching. Urban Midwest and East subjects also produced little (0-14%) switching. In the Southwest region, subjects produced a high incidence (12-50%; $\bar{x}$ = 24%) of language switching and were the highest producers of total language switching in this study. Similarly, a relatively higher percentage of total language switching was observed in Texas ($\bar{x}$ = 18%).

For English-tested subjects, percent total language switching was variable across region, grade level, and rural/urban status. The consistent trend for these subjects was for total language switching to decrease to near zero levels as grade level increased (Figure 5).

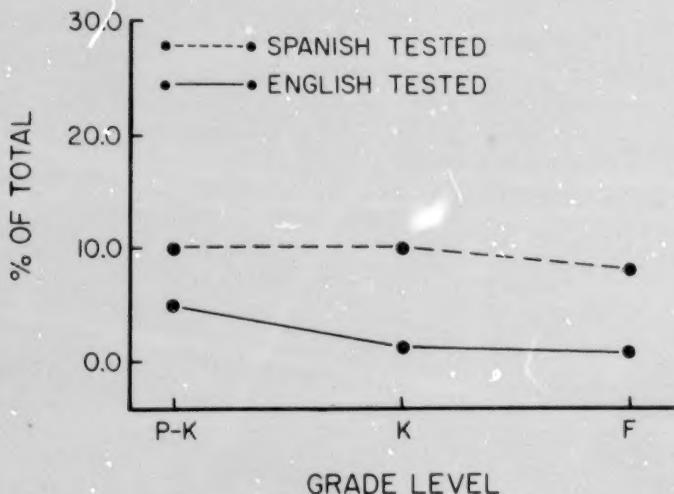


FIGURE 6. Mean Percent Intra-utterance Switching for Spanish and English Tested Subjects by Grade Level.

Intra-utterance Language Switching

Grade level. For Spanish tested subjects (see Figure 6), intra-utterance switching was at 10% for pre-kindergarten and kindergarten subjects, then dropped slightly to 8% for first grade subjects. For English-tested subjects, pre-kindergartners' mean percent intra-utterance switching was 5%. A decrease to 1% was observed for kindergarten and first grade subjects. Therefore, intra-utterance switching was very low (less than 10% of the total) for both groups at all ages. However, intra-utterance switching was twice as high for Spanish-tested subjects.

Grade level $\times$ rural/urban status. For Spanish-tested subjects (see Figure 7), rural and urban intra-utterance switching scores were nearly identical at pre-kindergarten and kindergarten levels (10-11%). At first grade, rural children's mean percent intra-utterance switching dropped to 6%.

For English-tested rural and urban subjects, the mean percent of intra-utterance switching was at 5-6% at pre-kindergarten. At kindergarten and first grade, intra-utterance switching was almost non-existent (1% for both groups).

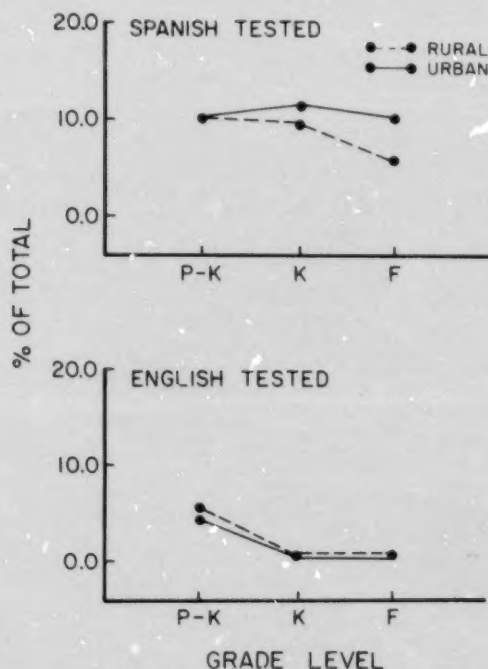


FIGURE 7. Mean Percent Intra-utterance Switching for Spanish and English Tested Subjects by Rural/Urban Status and Grade Level.

Grade level $\times$ region. For Spanish-tested subjects (see Figure 8), mean percent intra-utterance switching was extremely variable across regions. The scores for West and South regions remained under 6%. For the Southwest, scores ranged between 20% and 26%. A high level of intra-utterance switching was also observed in the Texas region (10-22%). Three regions (West, Texas, East) were characterized by a higher percentage of intra-utterance switching at first grade than at pre-kindergarten. Three regions (Southwest, Midwest, and South) were characterized by higher intra-utterance switching percentages at

pre-kindergarten than at first grade with the Midwest having the most dramatic decline (14% at pre-kindergarten, 6% at kindergarten, and zero percent by first grade).

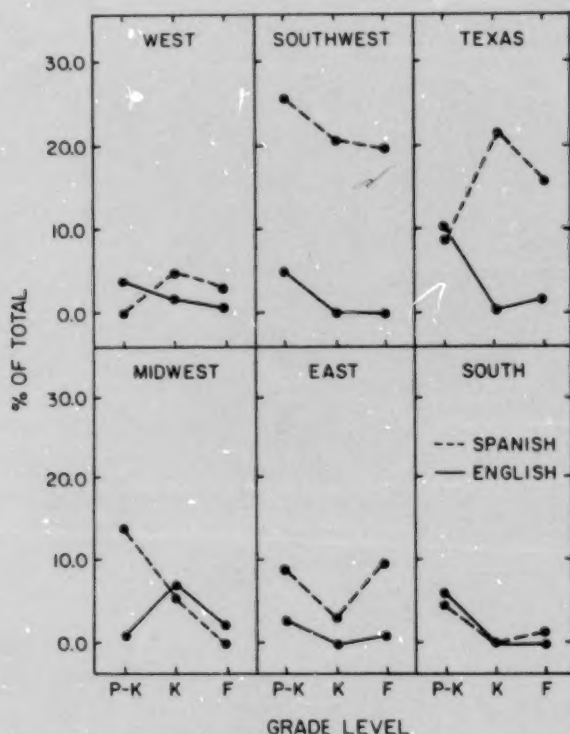


FIGURE 8. Mean Percent Inter-utterance Switching for Spanish and English Tested Subjects for each Region by Grade Level.

For English tested subjects, mean percent intra-utterance switching remained at near 5%. In all but the Midwest, intra-utterance switching decreased as grade level increased.

Grade level x region x rural/urban status. Figure 9 presents the mean intra-utterance switching scores for Spanish-tested subjects for each region by grade level and rural/urban site. Similarly, Figure 10 presents the mean intra-utterance switching scores for English-tested subjects. (Recall that no rural status subjects were tested in the Midwest and the East regions.)

For Spanish-tested subjects, no consistent urban/rural differences were identifiable, although individual regional differences were observed. For the Southwest region, urban subjects produced twice the percentage of intra-

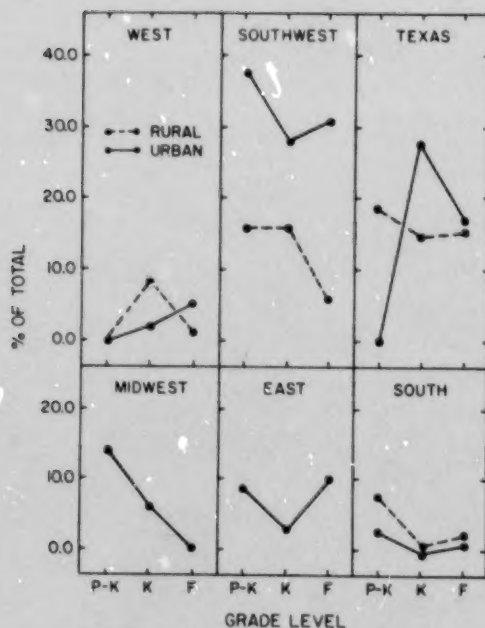


FIGURE 9. Mean Percent Intra-utterance Switching for Spanish Tested Subjects for each Region by Rural/Urban Status and Grade Level.

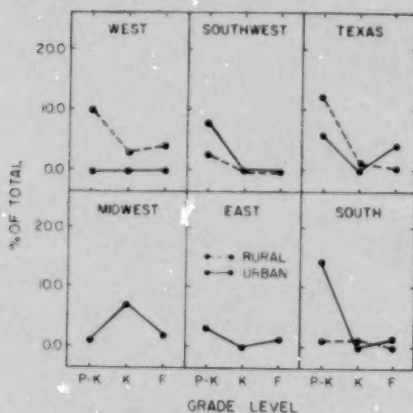


FIGURE 10. Mean Percent Intra-utterance Switching for English Tested Subjects for each Region by Rural/Urban Status and Grade Level.

utterance switches than their rural peers. For the Texas urban region, pre-kindergarten levels of intra-utterance switching was at zero, rose dramatically to 28% at kindergarten and decreased to 17%, approximately that equal to rural peers, by first grade. West and South urban/rural subjects were relatively equal in their intra-utterance switching across all three grade levels. Percent intra-utterance switching was generally consistent across grade levels in the East region while in the Midwest region it decreased from 14.0 for pre-kindergartners to 5.0 for kindergartners and zero for first grade.

For English-tested subjects (Figure 10), both urban and rural subjects remained at low levels or decreased between pre-kindergarten, kindergarten, and first grade. There were no identifiable differences across regions.

Summary of Intra-utterance Language Switching.

For Spanish-tested subjects, some regional differences were observed. Both rural and urban subjects from West and South regions produced little (0-8%) intra-utterance switching. In the Southwest region, however, urban subjects produced higher (26-38%) intra-utterance switching than rural subjects (6-16%) and were the highest producers of intra-utterance switching in this study. Similarly, a relatively higher percentage of intra-utterance switching was observed in Texas region subjects: 9-28% for urban subjects, and 15-19% for rural subjects.

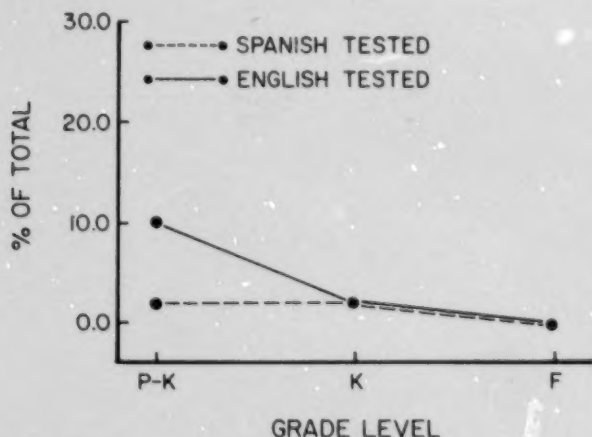


FIGURE 11. Mean Percent Inter-utterance Switching for Spanish and English Tested Subjects by Grade Level.

For English-tested subjects, percent intra-utterance switching remained consistently low (from 0-12%) across grade level, rural/urban status, and region. The consistent trend for these subjects was for intra-utterance switching in English to decrease to near zero levels as grade level increased (Figure 6).

Inter-utterance Language Switching

Grade level. For Spanish-tested subjects (see Figure 11), this form of language switching was almost nonexistent across grade levels (less than 2%). For English-tested subjects, pre-kindergartners' mean percent inter-utterance switching was 10%. A decrease to 2% was observed for kindergarten subjects, and no instances of this language switching form was observed for first grade subjects. Therefore, inter-utterance language switching was very low (less than 10% of the total) for both groups at all grade levels.

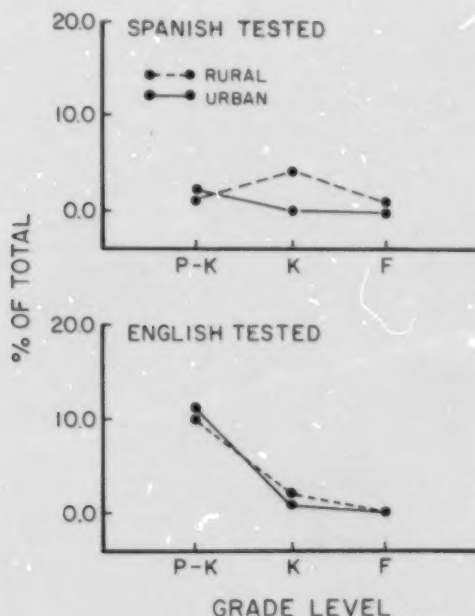


FIGURE 12. Mean Percent Inter-utterance Switching for Spanish and English Tested Subjects by Rural/Urban Status and Grade Level.

Grade level $\times$ rural/urban status. For Spanish-tested rural urban subjects (see Figure 12), the mean percent of inter-utterance switching was at 1-2% at pre-kindergarten, 0-4% at kindergarten and almost nonexistent (0-1%) at first grade. For English-tested rural and urban subjects, the mean percent of inter-utterance switching was at 10% for pre-kindergartners, decreased to 2% at kindergarten and was nonexistent for first grade subjects.

Grade level $\times$ region. For Spanish-tested subjects (see Figure 13), mean percent language switching was almost nonexistent across grade levels in five of the six regions. In the Southwest region, this measure was higher than in

other regions with observed occurrences at 10% for pre-kindergarten, dropping slightly to 8% at kindergarten and to 3% at first grade. For English-tested subjects, inter-utterance switching was characterized by a downward trend as grade level increased and was almost nonexistent (0-3%) at first grade level across all regions. The West region subjects showed the greatest decrease in this form of switching (26% at pre-kindergarten, 9% at kindergarten, and zero percent at first grade) while the East region subjects remained at or near zero across all grade levels.

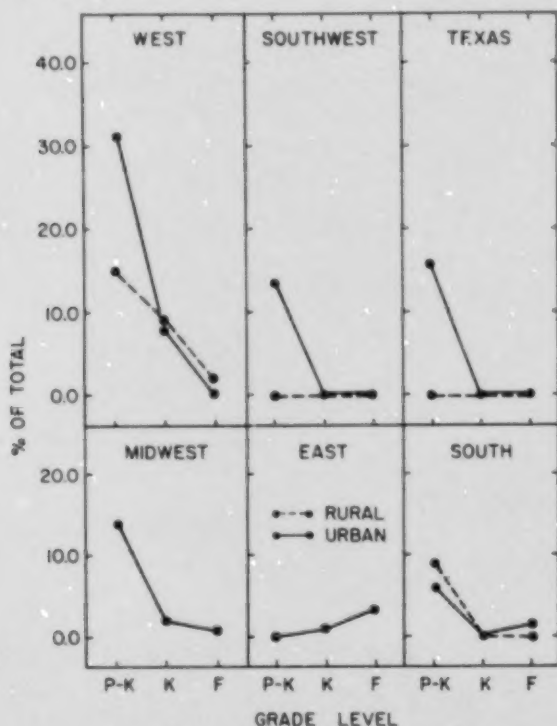


FIGURE 13. Mean Percent Inter-utterance Switching for Spanish and English Tested Subjects for each Region by Grade Level.

Grade level x region x rural/urban status. Figure 14 presents the mean inter-utterance language switching for Spanish-tested subjects for each region by grade level and rural/urban site and Figure 15 presents this same measure for English-tested subjects. (Recall that no rural status subjects were tested in the Midwest and East regions.) For Spanish-tested subjects, no consistent urban/rural differences were identifiable. Inter-utterance switching was below 2%

across regions and across grade levels. The only exception was the Southwest region in which urban subjects at pre-kindergarten produced relatively more instances of inter-utterance switching. At kindergarten and first grade, relatively more inter-utterance switching was observed in rural than urban children.

For English-tested subjects (Figure 15), the West, Southwest, and Texas regions were characterized by pre-kindergarten urban subjects' higher frequency of inter-utterance switching than pre-kindergarten rural subjects. However, both rural and urban subjects' scores decreased and approximated each other at kindergarten and were at zero at first grade.

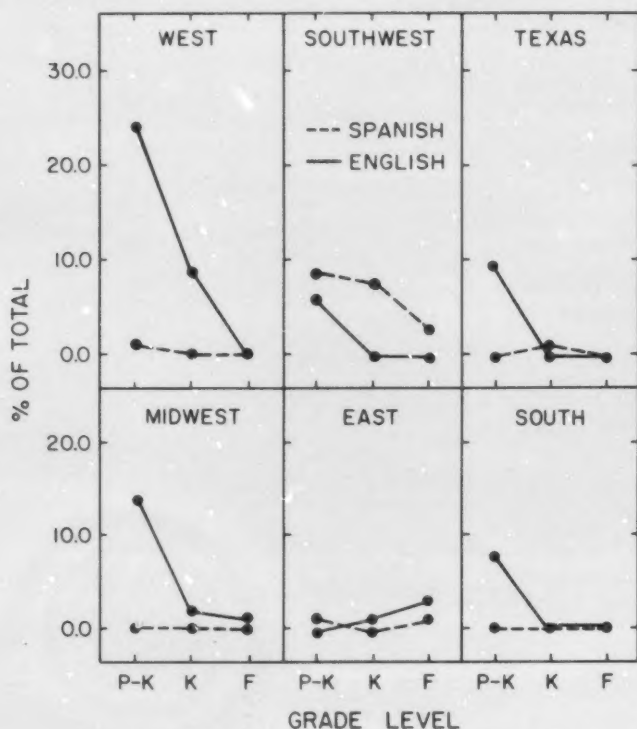


FIGURE 14. Mean Percent Inter-utterance Switching for Spanish Tested Subjects for each Region by Rural/Urban Status and Grade Level.

Summary of Inter-utterance Language Switching

For Spanish-tested subjects, percent inter-utterance remained consistently low (from 0-1%) across grade level, rural/urban status, and region. The only

exception was the Southwest region for which a higher relative incidence of this form of switching was generally observed in conjunction with a distinct rural/urban difference across grade levels.

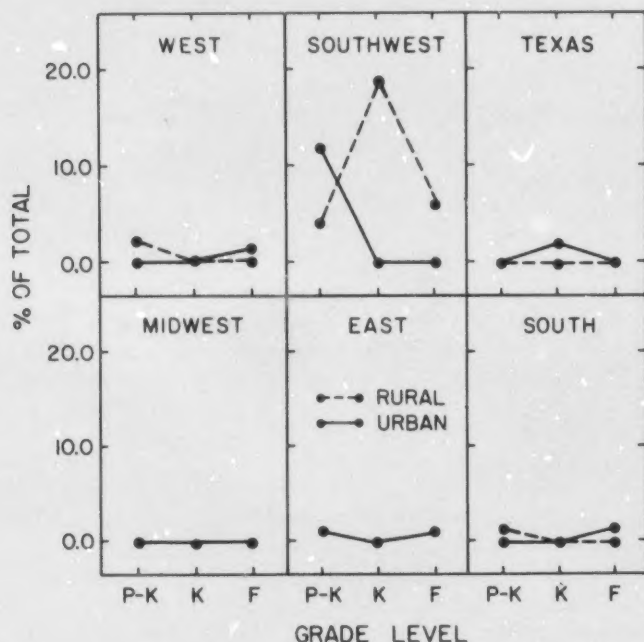


FIGURE 15. Mean Percent Inter-utterance Switching for English Tested Subjects for each Region by Rural/Urban Status and Grade Level.

For English-tested subjects, percent inter-utterance switching was characterized by a high incidence of switching at the pre-kindergarten level across regions (a range of 0-25%) with a distinct rural/urban difference (urban higher than rural) at the pre-kindergarten level in the West, Southwest, and Texas. The trend for these subjects was for inter-utterance switching to decrease to near zero percent as grade level increased.

DISCUSSION

It was the intent of this study to provide some insights concerning language switching by Spanish-English bilingual children of the United States across early schooling levels, urban/rural status and regional status. This comparison also provides some tentative contrasts between Spanish-English,

bilingual, ethnic populations of this country concerning the incidence of language switching. Moreover, an attempt was made to provide such comparisons with respect to intra- and inter-utterance language switching. The following are important conclusions extracted from this study.

Grade level. In general, the relative occurrence of language switching decreased as grade level increased (Figure 1). Yet this general conclusion, when considering the language of the "test," and, the type of language switching (intra- or inter) must be modified. Specifically for Spanish tested subjects, percent intra-utterance switching remained consistent across grade level and region. That is, regardless of grade level or region, the switching from Spanish to English which characterized the type of switching occurring in Spanish testing sessions remained nearly constant across grade levels. Conversely, for English tested subjects, percent intra-utterance switching declined as grade level increased, reaching zero percent by first grade. Therefore, as the relative occurrence of intra-utterance switching remained almost unchanged across grade level for Spanish tested children, this same type of language switching markedly declined for English tested children.

Such a finding suggests that a Spanish-English code existed across all grade levels of this study when children were required to converse in Spanish. And although a Spanish-English code was observed consistently in pre-kindergarten, and to a lesser extent in kindergarten, it was not observed in first grade when children were required to converse in English. These observations indicate the possible consistent amalgamation of English into Spanish discourse regardless of grade levels and the separation of English from Spanish during English discourse as grade level (schooling) increases. This amalgamation of languages in contact has been reported previously (Huerta, 1977) but its consistent nature within English and Spanish discourse across ages was unclear. The present data suggests that language switching is an important phenomenon in young bilingual children and that the relative occurrence of language switching is related to both the linguistic discourse context and grade level.

A second important point relevant to grade level in this study concerns the relative incidence of intra- and inter-utterance switching. For Spanish tested subjects, the relative incidence of inter-utterance switching was near zero for all grade levels. But, for English tested subjects, the relative incidence of inter-utterance switching was at 10% for prekindergarten children then abruptly dropped to 0% for kindergarten and first grade children. In other words, children who were required by the testing context to speak Spanish almost never switched into English discourse between utterances; and those children who were required to speak English switched to Spanish discourse between utterances only at the pre-kindergarten level. This finding, together with that of the intra-utterance observation, suggests that the amalgamation of languages in the Spanish context took place solely within utterances. Moreover, switching

from English to Spanish within the English testing context was limited to the pre-kindergarten level for both the intra- and inter-utterance switching across regions. The discrepancy in results for Spanish-tested versus English-tested subjects suggests that the English language of bilingual children incorporates little Spanish, and does so only at a young age (pre-kindergarten). Conversely, the Spanish language of bilingual children incorporates substantial English both at early (pre-kindergarten) and later periods (kindergarten and first grade).

Region. Although language switching was observed in all geographical regions sampled, children in the Texas and Southwest regions produced a relatively greater (3 to 4 times as much) percentage of language switching than their regional peers. This was the case for intra-utterance switching with Spanish tested subjects. Laosa (1975) reports similar region/ethnic differences in language switching in a study comparing self-report language use among Mexican Americans in Texas, Cuban Americans in Miami, and Puerto Ricans in New York City. It is very likely that these differences reflect language variations of dialects of Spanish which have incorporated instances of English lexicon and possible grammar.

Urban/Rural Status. The relative occurrence of language switching for urban and rural children of this study can be best described as similar. Few differences were observed between urban and rural subjects within regions, within grade level and within type of language switching. These similarities may have been a function of adopting extreme definitions of rural and urban. These "extremes" may be more likely to produce these similarities since it is likely that both the rural counties and urban counties from which samples were selected were likely to have as residents Spanish "dominant" cultures. For example, Los Angeles, California and Angelito, California may differ in population density (individuals per square mile), but both may very well be inhabited by a predominately Spanish speaking population from which this sample would be selected.

In regard to the above conclusions, it is important to emphasize that the data upon which they are based are quantitative in nature. No extensive qualitative analysis of language switching was performed. If forced to characterize the qualitative nature of language switching it would best be summarized as lexical substitution:

- (a) *Hay va una* girl.
- (b) *El boy esta llorando.*
- (c) *La mujer se va a la* house.
- (d) The *huerquito* is playing alone.
- (e) He's going to the *tienda*.
- (f) *El perro* is hers.

Rarely, other forms and grammatical (especially, present progressive) borrowings were observed:

- (a) He's *watchiando* the kids.
- (b) *Esta playiando con ellos.*
- (c) The *maestra está teachiando.*

Moreover, the data of the present study must be interpreted with additional constraints in mind. For instance, the children's actual discourse was unavailable for repeated critical analysis since no audio tapes were made of the subjects' discourse. We therefore had to rely on the trained examiners' transcriptions of the subject's verbatim responses to the test pictures. How expert or reliable the trained examiners were in picking up language nuances was something not available to empirical evaluation. Also, each group was tested only in Spanish or English, but not in both languages. Moreover, "regional-ity" was determined more by (1) the sample of subjects generated by ETS, and (2) state boundaries, rather than any clearly refined linguistic, ethnic or empirically based definitions.

With the above constraints in mind, the present findings appear to both support and counter previous studies in language switching. Prior to this study, it had been suggested that bilingual children separate and differentiate between Spanish-English language systems from an early age and continue to improve with age (Garcia, 1979; Lindholm and Padilla, 1977, 1979). The children of this study did appear to switch languages less at later ages, but produced a potentially significant amount of language switching at the pre-kindergarten level. Most significant is the observed occurrence of 10-15% language switching at preschool levels consistently throughout all regions. Recall that Huerta (1977) reported the occurrence of a "code switched" phase in her longitudinal study. The present data suggest a similar "inter-language" composed of Spanish and English for the English tested pre-kindergartners of this study. This was not the case for English tested kindergartners or first graders. Such a finding suggests that bilingual children in this country may weld languages together into a significantly different "inter-language" in English speaking contexts. In Spanish speaking contexts intra-language switching was consistent across grade levels, regions and urban rural status.

These findings carry specific implications for educational programs aimed at young bilingual children. First, instructors should anticipate the occurrence of switching instances in these young populations, especially in Spanish language contexts. Second, this language switched repertoire should be understood not as a linguistic handicap but as a developmental norm. This is not to suggest that language switching is to be encouraged. At present, such a conclusion is empirically unsupportable. But, the findings of the present study

indicate language switching in young bilinguals is likely to occur. Thirdly, it must be understood that regional and to some extent ethnic group differences do exist. Mexican American children of Texas, Arizona, New Mexico and Colorado are likely to demonstrate higher relative degrees of language switching than their other Spanish-English, Hispanic peers. Lastly, it is important to note that the present educational curriculum seems to affect the separation of languages (decrease the incidence of language switching) by first grade in the English language contexts, but not in Spanish language contexts of this study. These findings suggest that English "dominates" Spanish in later grades. That is, English continues to find its way into Spanish language contexts while Spanish initially does so at pre-kindergarten but then disappears in English contexts by kindergarten and first grade. This finding supports the notion that English continues to be the prestige language for all Spanish-English bilingual groups of this study. If Spanish is expected not to suffer, present instructional strategies which most probably reinforce English as the prestige language must shift. Evidence of such a prestige shift would be the occurrence of language switching in English speaking contexts.

Language acquisition and development is a fertile field awaiting further inquiry. Moreover, the phenomenon of language switching in bilingual children only compounds the need for further research into bilingual development. Aside from the few diary studies and the more recent descriptive analysis on a handful of bilingual children, greater in-depth research must be done on bilingualism. What seems imperative, based on the present study's findings, is language switching research which focuses on (1) developmental phenomenon associated with language switching, and (2) investigations of regional variations in both the quantity and quality of language switching across regions and age of children may pinpoint language acquisition processes and strategies which are important in bilingual acquisition. In sum, the phenomenon of bilingual acquisition and the exact character and causal factors related to language switching remains a rich field in need of harvesting. These efforts would be of clear theoretical and applied importance.

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PART Ic

Assessing the Bilingual Proficiency of Mexican American Pupils

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One of the most important issues and problems in the education of minority populations is the accurate assessment of their language abilities. Many of the pupils coming from minority populations are bilingual to varying degrees. How to measure their bilingualism most efficiently and realistically in a way that gives the most educationally relevant information is the problem that needs to be addressed by researchers.

The existence of the problem is, of course, widely recognized and well established in current educational discussion and research. The Northwest Regional Laboratory surveyed relatively recently (Silverman, *et al.*, 1976) existing oral language tests for bilingual students and came to the conclusion that there were relatively few, if any, satisfactory tests available. This general conclusion is reinforced by a needs analysis conducted by the National Institute of Education (Locks, *et al.*, 1978) which showed that there continues to be a persistent need for tests assessing the language competence of limited English speaking pupils. A glance at the proceedings of the latest international conference on Frontiers in Language Proficiency and Dominance Testing reveals that existing tests measuring relative dominance of (Spanish/English) bilinguals tend to be problematical and/or unsatisfactory (Morales 1978) and that almost all the important theoretical issues concerning the language testing of bilinguals and the establishment of their language dominance configurations remain unsettled (e.g. Hernández-Chávez, Burt and Dulay, 1978).

The problem of accurate assessment of language skills of bilingual minority pupils was recently brought into focus by the necessity of finding exact criteria which would allow placement of minority bilingual pupils from bilingual into monolingual ("mainstream") programs. This concern resulted in an

Office of Education RFP (RFP No. 78-111, August 1978) dealing with the establishment of "Entry/Exit Criteria and Associated Assessment Procedures for Bilingual Education Projects." The request seems to call essentially for development of language tests of high predictive validity. The RFP also expressly forbids that theoretical concerns be addressed in the proposal and research responding to it.

This paper (1) reviews the issues in current testing, (2) examines the conceptual schemes for determining and depicting bilingual dominance, (3) surveys the types of research studies and the different test dimensions of instruments used in assessing the bilingual proficiency of Mexican American pupils, and (4) argues for the inclusion of "classroom" language in the construction of language tests for bilingual pupils.

LANGUAGE TESTING THEORY: LINGUISTIC VS. COMMUNICATIVE COMPETENCE

Recent development in language testing has been devoted to characterizing the different linguistic aspects tapped by various test (cf., Jones and Spolsky, 1975; Valette, 1977; Davis, 1978; Oller and Perkins, 1978 and 1980, and Oller, 1979). Language testing associated with the behavioral-structural model of language learning divides language skills according to linguistic levels (phonology, morphology, syntax, vocabulary) and into performance skills which are either receptive (reading, listening) or active (writing, speaking). These skills are usually tested according to a discrete point approach which allows for high (specific item based) reliability. The behavioral-structural approach is increasingly questioned by various authors (in the USA, Oller 1978 in particular) who want to redirect language testing away from assessing discrete, linguistic responses and toward an emphasis on integrative approaches concerned with communicative skills.

The major dichotomy in language testing can be described as the one between linguistic competence testing on the one hand and communicative competence on the other. Linguistic competence refers to the ability to produce (and recognize) structures which are grammatically correct. Davis (1978: 150) describes this ability as an "analytical discrete" skill which is reflected in the speaker's mastery of the formal grammar of the language. Palmer (1979:170) views this competence in terms of a "compartmentalized control" of language. Communicative competence, on the other hand, is characterized by an "integrated control" (Palmer, 1979: *Ibid*) of language reflected in the speaker's ability to understand and use language appropriately to communicate in various situations.

The theoretical basis for the definition of linguistic competence can be found in a view of language as a self-contained, context-free system in the tradition of the structuralist and "orthodox" transformational point of view. The theoretical basis of the communicative competence construct is the anthro-

polological, sociolinguistic and pragmatic view of language. In the domain of testing, emphasis on linguistic competence tends to be associated with discrete grammatical items and a testing situation which is artificial and not related to communicative situations: e.g. asking the student complete sentences with the correct grammatical elements or changing nouns from singular to plural, verbs from the present tense to the past, etc. The testing of communicative competence tends to be associated with a global ability (integrating the different elements of language—grammar, vocabulary, etc.) involved in communicative acts—giving direction, requesting permission, apologizing, etc. In most instances, the specific situations are described by the examiner and rating scales are used to evaluate how effectively the examinee performed the communicative act.

One of the challenges in constructing communicative competence tests is the resolution of what has been referred to as the reliability/validity tension in language testing (Davis, 1978). Highly reliable discrete item tests which present language out of context lack the communicative situation and therefore have little face validity. Tests which elicit genuine communicative types of responses have the validity but depend for their reliability on inter-rater agreements based on rating scales.

One possible way for reducing the reliability/validity tension could be the evaluation of the utterances produced in specific communicative situations (e.g. requesting information) in terms of rating scales as well as discourse analysis which examines the relevant language functions performed by the examinee. Kean (1978:73-74) provides an example for this type of analysis applied to written communication. In his example, a British teacher asked her class to write instructions about "what to do when you go to vote." One of the students wrote the following procedure:

Going to Vote

It is quite simple. All you do is take your voting card to the polling station. This card tells you which polling station to vote at and gives you your number. This card will be coming to you by post any day now. If you forget the card do not worry, tell them at the desk your name and address and you have forgotten your card. The polling stations are open from 7 a.m. to 10 p.m. in which time you can go and vote.

The teacher wanted to focus on the amount of information and instruction necessary to achieve maximum clarity. When the passage was analyzed functionally, the functions of reassurance, instruction, and information emerged.

Reassurance	It is quite simple. All you do do not worry
Instruction	Take your voting card . . . Tell them at the desk . . .

Information	This card . . . your number. This card . . . any day now. The polling station . . . go and vote.
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The student did not provide sufficient information or detailed instructions (e.g., how to find the polling station). The student's reassurance "It is quite simple" did not provide the reader with the appropriate information to eliminate any doubts.

CONCEPTIONS OF BILINGUAL DOMINANCE

The measurement of bilingualism is usually specified in terms of an individual's knowledge of his two languages. Cohen (1975) draws from Bordie (1970), Macnamara (1967) and Cooper (1968, 1970) in depicting the degree of bilingualism according to five linguistic levels (semantics, syntax, morphemes, phonemes/graphemes, and lexicon), four language skills—two (reading and listening) which are receptive and two (speaking and writing) which are productive, and language variety which can refer either to a dialect (e.g., Southwest Spanish, "Standard" Mexican Spanish), register (e.g., classroom Spanish), style or level of formality (e.g., academic/literary Spanish, colloquial Spanish).

From a language testing theory perspective, Cohen's model follows the behavioral-structural view of language learning. His attention to "language variety" takes into account variability in language use due to the situation or speaker's dialect. In addition, he focuses on the area of orthography by including graphemes (the written representation of the phonemes) with the written skills involved in writing and reading.

Zirkel's (1974) conceptual framework for determining and depicting language dominance includes the four language skills, five linguistic components, and three sociolinguistic contexts (home, community, and school). He describes his paradigm by saying:

The four basic language skills and the cultural substratum are represented as a series of continua which are interrelated to the sociolinguistic domains and linguistic levels within a three-dimensional matrix (*sic*). Each continuum can be constituted of quantifiable units in Spanish and English depending on the dominance measure that is utilized. Each dimension could be further analyzed and segmented (e.g., listening skill into comprehension and phonetic discrimination; speaking skill into pronunciation, intonation, etc.) (p. 12).

While Zirkel's model explains bilingual dominance in relation to a series of continua composed of "quantifiable units," his concern for the speaker's ability to understand and use language appropriately (his stylistic category) in various situations reflects a context-sensitive view of language. Bilingual dominance could then be seen in a multi-dimensional perspective. Ramirez (1978) illustrates how bilingual proficiency could vary in the area of vocabulary as used in different contexts (home, neighborhood, church, and school—in

general) and specific school subject areas (math and art). A "balance" (dominance) now can be derived for each area by contrasting the number of correct items obtained in each language.

Hernández-Chávez, Burt, and Dulay (1978) characterize language dominance in relation to three major dimensions: (1) the linguistic components—phonology, syntax, semantics, and lexicon, (2) modality—the oral channel (spoken production and listening comprehension) and the written channel (reading and writing), and (3) sociolinguistic performance—usage (style and function) and language use (variety and domain). They provide the following explanation for the sociolinguistic parameter:

Style refers to alternate levels of formality that are expressed by linguistic entities which are distinct in form but equivalent in function. For example, on the lexical level, *buy* and *purchase* are stylistic alternates that have the same function, i.e., the same meaning, but on different levels of formality. The forms *isn't* and *is not* have the same relationship with respect to the phonology, and in terms of sentential function, either *May I help you?* or *What do you want?* is stylistically appropriate depending upon the social context.

The notions *variety* and *domain* bear a relationship that is analogous to that of style and function. Variety refers to a form of speech normally used by a given speech community for a particular set of purposes. Each variety is normally employed by the speech community within a given set of domains, i.e., situations defined by who the speakers are, the purposes of their interaction, and the content of their discourse. Since speech communities generally have access to a range of varieties and sub-varieties, appropriate varietal switching according to the norms of the speech community is an indispensable aspect of general language proficiency and thus must be taken into account in a comprehensive discussion of dominance and its measurement.

Hernández-Chávez, Burt, and Dulay suggest that one could construct a three-dimensional matrix with sixty-four possible intersections of "independently measurable" language proficiencies. However, an attempt to measure each component in the model would be a monumental task. Even if some of the components could be combined with others or eliminated because of non-significance, testing equivalent proficiencies in both languages is problematic since the use and function of two languages in society is unequal. Spanish may be used only in the oral modality (conversations in the context of the home and neighborhood, radio programming) in a given locality, while English is utilized in both the oral and written modalities and employed in the domains of school, work, government, and church. In addition, the particular variety of Spanish may include borrowing from English as well as "nonstandard" and/or archaic Spanish features. It may also be the case that some of the speakers may alternate (code switch) from one language to the other while performing communicative acts (e.g., asking for permission, apologizing, explaining, etc.). Thus, it appears that measuring language dominance without examining the nature of societal bilingualism could greatly distort any conclusions made on individual bilingual proficiency.

RESEARCH STUDIES ASSESSING BILINGUAL PROFICIENCY

The language of the Mexican American child has attracted scholarly attention in recent years. A number of studies have been conducted to examine Spanish proficiency (e.g., Lastra, 1969; Brisk, 1973), mastery of oral English (e.g., Carrow 1957; Amsden, 1969; VanMetre, 1972; Ramirez, 1974; Valadez, 1976), listening comprehension in English (e.g., Carrow 1971, 1972) and code switching phenomena (e.g., Hernández-Chávez, 1975; Wentz and McClure, 1976; Valdes-Fallis, 1978).

The number of studies which have focused on the assessment of language dominance are relatively few. Table 1 lists some of the major studies evaluating different dimensions of bilingual proficiency. From the perspectives of the models used in depicting bilingual dominance several patterns emerge. Nearly all of the studies, except the two by Cohen, concentrated on the oral channel of communication. Of those examining oral language production, only the studies by Chun and Politzer (1975) and Merino (1976) attempted to compare the relative degree of bilingualism in active (oral production) and passive (listening comprehension) terms by using parallel test versions. With the exception of Genishi's (1976) study that explored the child's sociolinguistic competence which allows him to switch from one language to another to accommodate to the listener's language dominance, the other studies selected one or several linguistic components as the basis for establishing bilingual proficiency. The emphasis on specific linguistic components was followed in most cases by a parallel elicitation procedure of cueing each student response with a verbal and pictorial stimulus. This procedure seems to assess the pupil's ability to manipulate language rather than his ability to use language as a communicative tool.

TEST INSTRUMENTS WHICH ASSESS BILINGUAL PROFICIENCY

The types of assessment instruments which are available and in current use within the context of bilingual education programs have recently been surveyed by Silverman, *et al.* (1976) and Pletcher *et al.* (1978). The majority of the instruments, as with the research studies, concentrate on the oral channel of communication and test the pupil's speaking ability. Most of the instruments can be classified in one of three categories:¹ (1) those that determine language dominance at the level of vocabulary (e.g., Crane Oral Dominance Test, James Language Dominance Test, Dos Amigos Verbal Language Scales), (2) those

¹For a description of the language tests described here, consult Pletcher *et al.* *A Guide to Assessment Instruments for Limited English Speaking Students*. New York: Santillana Publishing Company, Inc., 1978.

that establish language dominance through the mastery of grammatical features/syntactic structures or sentence complexity (e.g., Bilingual Syntax Measure, Basic Inventory of Natural Language, MAT-SEA-CAL Instruments for Assessing Language Proficiency), (3) those that determine establishment of dominance according to the four language skills—listening, speaking, reading and writing (e.g., Language Assessment Battery, Marysville Test of Language Dominance).

A few tests such as the Language Assessment Scales (LAS I and II) include various linguistic components: (1) phonology (phonemic distinctions), (2) lexicon (word identification through pictures), (3) syntax (associate picture with a sentence and recall a story), and (4) pragmatic use of language (teacher rates the child's ability to complete tasks which require language (e.g., playing with peers, shopping at the store). This fourth dimension is not included in the scoring calculations, but it may be used as a comparison with the pupil's *final proficiency level*.

BILINGUAL PROFICIENCY AND SCHOOL LANGUAGE

The models used to depict language dominance (Figures 1, 3, 4,) and a few of the studies which have examined bilingual abilities (Table 1) have been sensitive to language variation due to the context or situation. Concern for differences in bilingual proficiency because of sociolinguistic factors, however, has not taken into account the nature of classroom language. The National Conference on Studies in Teaching, panel 5, reported in *Teaching as a Linguistic Process in a Cultural Setting* (Cazden, 1974) argues for the need to study the structure of classroom communication and the particular uses of language. Heath (1978) discusses the nature of teacher talk in the classroom and points out that often commands (directives) have the form of questions ("How about settling down to work?", "Is this where the scissors belong?")

Thus, in the classroom the teacher may want her students to be quiet. She may say:

- (1) Let's be quiet.
- (2) You're talking too loud.
- (3) Stop talking!

Utterance (3) has the imperative form and is a rather direct way of expressing her intention "(I want you to) stop talking." Utterance (1) is a less direct expression of her intention; even though it has the imperative form, utterance (2) is an affirmation, but the students must interpret it as an order for them to stop talking or to speak more softly.

The student who has performed well on a "linguistic competence" language test may be unable to function effectively in the classroom setting. This is particularly significant for the establishment of entry/exit criteria associated with bilingual education projects.

Cummins (1979) presents the view that language skills can be divided into two groups: One, a "dimension of language proficiency which can be assessed by a variety of reading, writing, listening, and speaking tests, which is strongly related both to general cognitive skills and academic achievement," is called Cognitive/Academic Language Proficiency (CALP), a unified dimension of skills; the second group of skills, those called Basic Interpersonal Communicative Skills (BICS), represents several aspects of communicative ability. Cummins adduces the independence of these two groups from the findings that persons have acquired a second language naturally, without formal tutoring, and that students who appear to be fluent in speaking a language may not necessarily be adept at performing cognitive operations in that language.

The skills most clearly related to CALP are those involved in reading and writing, the types of tasks which are dependent on formal manipulation of linguistic structures. However, because work done in the field of oral language testing also suggests a difference between mastery of discrete grammatical forms and proficiency in general communicative ability, it seems reasonable to explore the types of oral language skills which might contribute to CALP. A study of the types of "academic language use" observed in bilingual classes with bilingual students would illuminate the connection between specified language behaviors and achievement.

The task of assessing the bilingual proficiency of Mexican-American pupils remains. The models used to depict bilingual dominance may need to be reconceptualized to include the functions of language, particularly those specific to the classroom context. Research efforts must now be directed at examining such constructs as the cognitive/academic dimensions of language proficiency along with the sociolinguistic aspects of interpersonal communication.

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TABLE 1

STUDIES ASSESSING THE BILINGUAL PROFICIENCY OF
MEXICAN AMERICAN PUPILS

INVESTIGATOR(S)	LINGUISTIC COMPONENT	MODALITY	ELICITATION PROCEDURE	PUPILS' AGE/GRADE	RESEARCH SITE
Chun and Politzer (1975) Politzer (1976, 1978)	syntactic structures (14 categories)	oral production and listening comprehension	cued responses with verbal and pictorial stimuli	grades K, 1, 3, 5 grade K (N = 13)	California (Redwood City)
Cohen (1975)	phonology morphology syntactic patterns vocabulary by sociolinguistic domain (4 contexts) code alternation	listening comprehension oral production reading writing	cued responses verbal and pictorial stimuli storytelling natural discourse	grades K-3	California (Redwood City)
Cohen, Fathman, and Merino (1976)	"	"	"	grades K-4	"
Cornejo (1973)	lexicon	oral production	interview	N = 24 5 years	Texas (4 types of communities)
García and Trujillo (1978)	lexicon syntactic structures	oral production	imitation of verbal stimuli	N = 30	Utah (Salt Lake City)
Genishi (1976)	code alternation (sociolinguistic competence)	oral production	natural discourse	N = 4 6 years	California
Martínez-Bernal (1972)	Morphological system and noun phrases	oral production	cued responses with verbal and pictorial stimuli	5-8 years	Arizona (Tucson)

TABLE 1 (Cont'd)

INVESTIGATOR(S)	LINGUISTIC COMPONENT	MODALITY	ELICITATION PROCEDURE	PUPILS' AGE/GRADE	RESEARCH SITE
McClure (1978)	morphology lexicon code alternation syntax	oral production	natural discourse cued responses	pre-school and grades K-4	Illinois
Merino (1976)	syntactic structures morphology	listening comprehension and oral production	cued responses with verbal and pictorial stimuli free speech	N = 41 grades K, 1, 2, 3, and 4	California (Redwood City)
Peña (1967)	syntactic structures (6 basic patterns and 5 transformations)	oral production	cued responses with verbal and pictorial stimuli	N = 88 1st grade	Texas (San Antonio)
Ramírez and Politzer (1975)	syntactic structures (10 types)	oral production	cued responses with verbal and pictorial stimuli	N = 40 grades K, 1, 3, 5	California (San Francisco)
Ramírez and Politzer (1975)	syntactic structures (10 types) and vocabulary by sociolinguistic domain (4 contexts)	oral production and listen- ing compre- hension	cued responses and verbal and pictorial stimuli	N = 40 grades 1, 3	Texas (Crystal City)
Young (1978)	semantics (10 categories)	listening compre- hension	associate illustration with verbal stimuli	1st grade	New Mexico (Albuquer- que)

Part II.
Cognition

PART IIa

Predicting the Academic Success of Minority Language Students from Developmental, Cognitive Style, Linguistic and Teacher Perception Measures

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INTRODUCTION

Since the Coleman Report in 1966, the low academic achievement of many students has been well documented. Investigations have reported that the Mexican-American, Native American, Puerto Rican and other ethnolinguistically different populations are characterized by overagedness per grade, excessive grade repetition, high dropout rates and, in general, low academic achievement (Anderson, 1969a; Cervantes, 1976; Crane, 1977; National Bureau of Educational Statistics, 1976; United States Commission on Civil Rights, 1971).

In particular, the educational problems of Spanish language background children have been well established in several reports released by the United States Commission on Civil Rights (*Report I*, 1971; *The Unfinished Education*, 1971; *The Excluded Student*, 1971; *Teachers and Students*, 1973; *Towards Quality Education*, 1974). More recently, the *National Assessment of Educational Progress Report* (Crane, 1977) has documented the low achievement of Hispanic school age children from 1971 to 1975 in five learning areas: reading, social studies, mathematics, vocational education and science. In each of these areas the Hispanic child is below the national average.

Finally, Carter and Segura (1979) present convincing data which illustrates that not only do Hispanic children evidence lower overall achievement in

virtually every academic area, but that the "holding power" of the schools is substantially less for these students than for any other group save Native Americans.

Research concerning other linguistic minority children also has documented their low academic achievement and retention rates (e.g., Gaudia, 1972; Horn, 1970; Lesser, Fiffer & Clark, 1965; Stewart et al., 1965; Werner et al., 1968). It would thus appear that Hispanic and other children do not do very well in American schools and because of this, they leave. The important question becomes, "Why is the achievement of these children so low in the first place?"

Research concerning this question has produced explanations derived from between-group comparisons on variables thought to be related to academic achievement. Unfortunately, when within-group analysis of the relationship between these so-called group difference variables and academic achievement is made, almost without exception, English language proficiency is ignored. The purpose of this paper is to review a number of approaches to the problem and to present the results from a study in which the relationship between "group difference" variables and school achievement are examined, taking English oral proficiency into account. In particular, the study focuses on the relative importance of English language proficiency, cognitive style, and teacher ratings as predictors of language, reading and math achievement for eight ethno-linguistic groups.

While this study does not directly address the issue of *why* particular ethno-linguistic groups differ in academic achievement, it does examine the issues related to attempts to explain low academic achievement in terms of cognitive style, language and teacher judgment variables.

STATEMENT OF THE PROBLEM

Recent court decisions (e.g., *Lau vs. Nichols*), and state and federal laws have recognized the right of language minority children to participate fully in, and hence gain the benefits of, the United States educational system. In an effort to meet this mandate, serious consideration has been given to the special differences and needs of language minority children. Of major interest has been the effort to provide educational programs which would be compatible with the special circumstances of these children. One focus of these efforts has been on the use of cognitive, or learning, styles as a possible guiding principle in the design of such programs.

For example, considerable attention has been given to the argument that the low academic achievement of at least some language minority children is due in part to an incompatibility between the "cognitive style" of these children and that which is emphasized in the schools. Such incompatibilities are said to be the end result of socialization styles reflecting the cultural values and background of the ethnic group (Ramirez & Castañeda, 1974).

Other areas of focus stem from earlier conceptions of the characteristics of low achievers. For example, Metfessel and Seng (1970) characterize the low achiever as one whose "cognitive structure" has important gaps in fundamental knowledge, is typically handicapped in language development, and generally has parents who are poor language models and who do not value or encourage intellectual development. In one context or another, such variables as self-concept, attitudes toward school, motivation to achieve, language deficiency, bilingualism, cognitive development, and even intelligence have all been identified as important determinants of low academic achievement (Coleman et al., 1966; Kagan & Buriel, 1977; Ogbu, 1974).

However, for a variety of methodological and theoretical reasons, recent investigations have tended to reject virtually all of these conceptualizations concerning academic achievement, especially with respect to Mexican-Americans (e.g., see Cervantes, 1976; De Avila et al., 1976; Duncan & De Avila, 1979; Kagan & Buriel, 1977; Ogbu, 1974). For example, in their recent review of the literature on language minority students, De Avila and Duncan (1978) found that in only one out of a total of over 120 studies which claimed to examine various effects due to the "bilingualism" of language minority students was the oral language proficiency of the comparison groups actually assessed or controlled (Peal & Lambert, 1962).

Finally, research by Cohen (1973, 1977, 1979) points to the importance of perceived status and teacher expectations in the academic performance of Blacks, Mexican-Americans and other minorities. Her research sheds new light on the effects of teacher judgments on student achievement.

Despite this knowledge, little information is known concerning those factors which contribute most to influencing the achievement of language minority children. In particular, the relationship between cognitive style and achievement has been especially inconclusive and inconsistent.

The reasons for this are various, but to some extent, at least, can be attributed to an overemphasis on research approaches which inevitably end in insidious comparisons between mainstream and non-mainstream children (Anastasi, 1976; Block & Dworkin, 1974; Buss & Foley, 1976; Cole, 1975; Ginsburg & Koslowski, 1976; Mercer, 1975, 1973; Rosch, 1975; Scribner, 1974). Anastasi (1976) points out that "tests whose items have been selected with reference to the responses of any special groups cannot be used to compare such groups." Rosch (1975) points out the dangers in making comparisons between groups. She states, "(s)uch comparisons can unfortunately easily fall into the logic of a psychometric 'deficit mode.'" Given the tendency for researchers to infer that tests measure underlying abilities or traits (e.g., see Tyron, 1979), such group comparisons can be devastating in effect (See Note 1).

In addition, in virtually all investigations into the sources of low achievement, much attention is given to those sociocultural aspects that correlate with

academic achievement on the assumption of a causal relation. Consequently, it is not surprising that the tendency has been to focus on the personal and behavioral characteristics of language minority children thought to result from different and limited environmental experiences. Thus, the relationship between group difference variables and achievement is based merely on the observation that group differences on these variables occur concurrently with group differences in achievement.

REVIEW OF THE VARIABLES

Prior to the presentation of the study, it would seem worthwhile to briefly review research relating to the variables used in the study. In the following review, it should be borne in mind that the discussion will focus on Mexican-American children since most research with the variables has been done with this group. However, the issue to be addressed pertains to virtually all language minority groups.

English Language Proficiency. The effects of oral English language proficiency on school achievement and cognitive development have not been empirically studied to any great extent. Measures of oral English language proficiency are noticeably absent from studies involving non-English language group (e.g., see De Avila & Duncan, 1976, 1979).

In fact, the NAEP study of achievement for Hispanic Americans (Crane, 1977) notes in its own study that many of their questions probably measure English language proficiency, that there were no mechanisms to deal with this problem within the framework of the approach, and that the effect of language proficiency on achievement is not known. They conclude:

Until proficiency in English is carefully studied, we cannot be sure what English-speaking means. The category English-speaking might include any or all of the following groups: English monolingual, English dominant, bilingual or Spanish dominant (Crane, 1977, p. 3).

When language is taken into account, children are usually classified on the basis of more global categories such as English "dominance" or in terms of whether their natural language is English or not. Consequently a common, but meaningless, result is that English dominant minority children perform better on English achievement tests than non-English dominant children. The resultant conclusion that the problem is thus language ability is often made, but is not justifiable on the basis of such observations alone.

As a result, the exact empirical relationship between English language proficiency and achievement is not known. Possibly this is because common sense alone dictates that limited communicative skills in a language which is the medium of instruction would preclude most chances for success.

In part, the data that exist to support this "intuitive" claim are based on the fact that ethnolinguistically different children show such poor performance

in the schools. It naturally follows that part of the problem must be related to English language skills.

While this reasoning is in part true, much confusion abounds with respect to both the meaning and the measurement of English language proficiency (e.g., see De Avila & Duncan, 1976). For example, oral English language proficiency is often confused with the concepts of language achievement and language dominance. As a result, so-called English dominant minority children are often used as a criterion group with no measure of English language proficiency. Moreover, determination of language dominance is often based solely on observations and other subjective rating scales (e.g., Denker, 1977; Gordon, 1976; Michael, 1971; Rogers, 1969) which are of questionable validity.

English language achievement, on the other hand, is often not distinguished from English language proficiency. For example, language achievement refers to skills learned in a structured setting such as the classroom. To a major extent, the degree of achievement is directly related to the child's exposure to the specific content covered by the test. In contrast, language proficiency refers to the student's language skills in English which are learned in both school and natural settings. It is more generalizable in that it is not necessarily dependent upon specific instruction or content. Moreover, language achievement is more likely to be dependent upon proficiency than vice versa.

Because of the failure of previous research to clearly distinguish between individual language differences or to include language assessment at all, it is difficult to draw conclusions regarding oral English proficiency and achievement.

Teacher Judgments. Related to the issue of English language proficiency is recent research concerning academic achievement and teacher expectations of minority students' performance reported by Cohen (1973, 1977, 1979). Based on the theory of Status Characteristics and Expectation States (Berger, Cohen & Zelditch, 1972), Cohen (1973) reports that the expectations of other students (non-minority) and teachers produce a self-fulfilling prophecy on the part of minority students. Basically, she argues that the preconceived attitudes of students and teachers in the classroom do not foster equal status relations in the school. As a consequence, minority students who tend to be the low achievers are constantly being directed by their experiences to fulfill this expectation.

If teachers tend to associate lack of oral English proficiency with a deficiency in other abilities (e.g., see Carter & Segura, 1979), then it is easy to see the significance of Cohen's work. In fact, Cohen notes that one problem in the schools is that teachers and students tend to equate intelligence or "ability" as a unidimensional characteristic. They also associate reading ability (or

achievement) as a valid indicator of this ability. Hence, the poor reading (and achievement) of many students is interpreted as a reflection of their ability in general.

In addition, she points out that even though teachers are able to identify the symptoms of the "low concept" child, they fail to recognize that this is perhaps but a symptom of the student's reaction to the general expectations presented to them in the schools.

Cohen's position is similar to that presented by Ogbu (1974) in that both distinguish between certain psychopathologic characteristics of the students and their reaction to a particular social situation.

The importance of this distinction cannot be overemphasized. Basically, it means that any individual, regardless of ethnicity or culture, is likely to behave in the same way when confronted with situations similar to those found in the schools. Their behavior is a result of their *reaction* to what they perceive is presented to them in the schools, and not necessarily a general characteristic of the particular student, group or culture.

Cognitive Style. Several dimensions of cognitive style can be found in the literature (e.g., see Cazden & Leggett, 1976). However, only the two dimensions of conceptual tempo and field dependence/independence will be discussed below. This is because these particular constructs have been associated with child rearing practices and achievement. Thus, they are especially germane to the present study.

Recently, hypotheses have been posited that the low achievement of Mexican-American, and possibly other children, is associated with concomitant differences in cognitive style, and that their apparent propensity for one mode of cognitive style functioning over another is due to child rearing practices. In the following, these two constructs will be described. Following this, an analysis will address the relationship between the two constructs and achievement in eight ethno-linguistic groups.

Conceptual Tempo. The conceptual tempo construct is said to represent the dimension of reflectivity-impulsivity. The construct originated with Jerome Kagan and his associates (Kagan et al., 1964). It is used to explain individual differences in mode of responding to cognitive solving tasks. The Matching Familiar Figures Test (MFFT, Kagan et al., 1964) is the prototype measure of this aspect of cognitive style.

Basically, the reflectivity-impulsivity dimension reflects differences in problem solving behavior on tasks which contain response uncertainty (Messer, 1976), or embody inductive reasoning (Kagan, Pearson & Welch, 1966). According to Messer, subjects who respond quickly often err, whereas those who pause to reflect on response alternative are more often correct. This relationship is reflected by the correlation between the performance measures of the MFFT. These are response time and number of errors. The correlation between these measures is roughly $-.48$ (Messer, 1976).

Conceptual tempo is said to be related to many aspects of successful task performance. It has been associated with the tendency of children with educational deficits to be more impulsive and to child rearing practices (Campbell, 1973). For example, Hetherington and McIntyre (1972) report that certain characteristics of mothers are related to the degree of impulsivity in their children. Mothers of impulsive children are reported to have lower academic expectations and do not intervene or structure learning situations in comparison to mothers of reflective children. Since child rearing practices have been identified as an influential factor in the performance of Mexican-American children (Ramirez & Castañeda, 1974), then their performance on the MFFT should be related to achievement, if this is true.

Field dependence/independence. Currently a great deal of attention has been given to the relationship between cultural background and cognitive style (Castañeda, 1976; De Avila & Duncan, 1979; Duncan, 1979; Duncan & De Avila, 1979; Holtzman, Diaz-Guerrero & Wartz, 1975; Kagan & Buriel, 1977; Laosa, 1977, 1979; Ramirez & Castañeda, 1974). In particular, the cognitive style relating to Witkin's (1951) construct of field dependence/independence (FDI) has been the main focus of these investigations. The purpose here is not to provide the theoretical or historical development of the FDI construct. For this, the reader is referred to accounts provided by Kagan and Buriel (1977) and Duncan and De Avila (1979). Instead, we will review the recent research which utilizes this construct to interpret cognitive functioning in Mexican-American populations. Therefore, in the following, only a brief description will be given of the FDI construct.

In its simplest terms, the FDI construct is described as a bipolar dimension which can be used to describe the individual differences in perception, remembering and thinking, and organizing and processing information. The bipolar dimensions are represented by a field dependent and a field independent mode of cognitive functioning. In general, field dependence/independence represents behavior associated with an individual's cognitive orientation with respect to a given stimulus or environment. The best way to describe the field dependent/independent construct is in relation to the way it is measured.

In one task (Rod and Frame, RFT), field dependent/independent behavior is associated with the strategy which an individual uses in order to determine the true upright (Pascual-Leone, 1974; Witkin, 1950). Field dependent individuals use a visual feedback procedure whereby information provided by the immediate visual field is utilized to determine the true vertical. Field independent individuals on the other hand use a postural feedback procedure in which the body is used to determine the vertical. Both strategies can lead to a correct solution in locating the upright. The difference in results, though, is obtained when a visually misleading cue is introduced. Individuals using a visual feedback strategy tend to be misled by the cue.

In another task (Embedded Figures Task, EFT), a subject is required to locate a simple geometric figure when it is hidden within a larger, complex figure. The embedded figures' task, like the rod and frame task, also requires the subject to overcome misleading cues provided by the larger, more complex figure. The more independent the subject is from the background or field provided by the larger figure, the more field independent the subject is said to be (Duncan & De Avila, 1979).

The Draw-a-Person test (DAP) is also used to assess field dependence/independence (Duncan & De Avila, 1979; Holtzman et al., 1975; Mebane & Johnson, 1975). In the Draw-A-Person test a special scoring procedure (Witkin, 1962) is used to determine the degree of intellectual and perceptual articulation of body parts. The extent of this articulation or differentiation of body concept is taken as a measure of field independence.

Finally, Piagetian conservation tasks and representation of the horizontal coordinate (water level task) are seen to require the same cognitive restructuring as the rod and frame and disembedding tasks (De Avila & Duncan, 1979; Pascual-Leone, 1974). Thus, the field independent individual would be expected to produce more sophisticated figure drawings, would perform well on conservation tasks and would be able to locate the true horizontal in the water level task.

According to Duncan and De Avila (1979) field dependence/independence

... is used to designate contrasting tendencies to rely primarily on external referents or on the self and assumes that degree of autonomy from external referents will be consistently revealed in cognitive/perceptual functioning as well as in interpersonal behavior (p. 17).

Moreover, FDI is considered to be the end result of socialization practices. It is in this respect that it has been argued that the cultural values and socialization practices of Mexican-Americans is consonant with a field dependent or field sensitive* cognitive style (Ramirez & Castañeda, 1974).

According to Ramirez and Castañeda (1974) and others (e.g., Castañeda, 1977; Ramirez, Castañeda & Herold, 1974; Ramirez & Price-Williams, 1974), differences in learning and incentive-motivational styles between ethnic groups are the end result of different socialization practices and the teachings of the mother. Because various cultural groups value characteristics that promote one type of learning behavior over another, members of these groups, in general, tend to be oriented toward the learning behavior preferred or valued by the group. Thus, according to Ramirez, Castañeda et al., students come to school equipped with preferred modes of learning; modes of learning resulting from

*The term field sensitive is used in place of field dependent by Ramirez and Castañeda (1974).

the child's cultural milieu and the teaching style primarily of the mother (see Laosa, 1978).

The above researchers also argue that cognitive style varies with degree of assimilation to the Anglo-American, mainstream culture, with traditional, dualistic and assimilated Mexican-American groups representing greater "differentiation" or field independence. The main premise of the Ramirez and Castañeda position rests on the notion that the cultural characteristics and child rearing practices of traditional Mexican-Americans promote a field sensitive cognitive style. In this way, Ramirez and Castañeda have perhaps characterized traditional Mexican-American culture as consisting of that which is reflected in the life styles, living conditions and socioeconomic status of rural Mexicans, and, in effect, risk a negation of the heterogeneity that characterizes Mexicans and Mexican-Americans in general. Such a sociological characterization is similar to that discussed previously concerning the confusion between psychopathological behavior and an individual's reaction to the environment. That is, it perhaps confused culture with negative environmental conditions.

Field Dependence/Independence and Mexican-American Achievement. Of interest, but not pointed out by Kagan and Buriel, is that many of the correlations between FDI and achievement for Mexican-Americans are actually increased when grade and sex are partialled out. This implies that these two variables act as a moderator variable with respect to Mexican-Americans and may signal that the relationship is not as similar for the two ethnic groups as Kagan and Buriel seem to think. In addition, the interpretation of the data reported must be viewed with caution. A primary premise in the majority of research concerning FDI and Mexican-Americans concerns the degree of acculturation of the Mexican-American sample. The data reported do not distinguish between traditional, dualistic and atraditional Mexican-American communities (Castañeda, 1976). Since much of the hypotheses generated about the influence of FDI on the academic achievement of Mexican-Americans includes this distinction, the data to be found can only be viewed as incomplete. As will be seen below, this is true even though much of the research has not supported a strong relationship between Mexican-American social values and FDI.

DESIGN OF THE STUDY

The primary purpose of this study was to examine the relationship between cognitive style, language, and developmental variables in predicting school achievement within grade level and ethno-linguistic groups. The design of this study is correlational involving stepwise multiple regression analysis. The predictor variables are cluster scores found by cluster analysis (Tryon & Bailey, 1970) of measures of field dependence/independence, conceptual tempo, developmental and language variables. Three cluster domains correspond-

ing to language, cognitive style/development and conceptual tempo were defined, and the standardized cluster scores were used to predict academic achievement. Data for the a priori variables were obtained from eight ethno-linguistic groups in the 1st, 3rd and 5th grades on the Children's Embedded Figures Test (CEFT); Draw A Person (DAP); Matching Familiar Figures Test (MFFT); Egocentricity and Conservation of Substance subscales (CCS); the Language Assessment Scales (LAS); and, in a second series of analyses, a Teacher Questionnaire (TQ) designed to assess the teacher's perceptions of the student's behavior in the school setting.

Ethnolinguistic Groups

(1) **Urban Mexican-American.** Children in this group live in a northern California community just south of San Francisco. The (K-6) school where the children were tested is located in a partially residential-commercial neighborhood. The level of English oral language proficiency (see LAS instruments below) of the children as a group was limited English for 1st graders, limited to near-fluent for 3rd graders and fluent English for the 5th graders.

(2) **Rural Mexican-American.** This group is located in Southwest Texas, ten miles from the U.S.-Mexico border. The community is basically agricultural with light manufacturing. The school is K-6 with about half the teachers being Mexican-American. The English and language proficiency for these children was limited English for 1st graders, near fluent English for 3rd graders, and limited to near fluent English for 5th graders.

(3) **Puerto Rican-American.** Children in this ethno-linguistic group come from an "inner city" K-3 school. The school is located in a highly "urban" city about 300 miles from New York City. The school is seventy percent Puerto Rican. Although it is an inner city school many of the children migrated from a rural area in Puerto Rico. About half the teachers are Puerto Rican as is the bilingual coordinator. Average English oral language proficiency was non-English speaking for 1st graders, limited to near fluent for 3rd graders, and near fluent for the 5th graders.

(4) **Cuban-American.** The children in this community come from a lower-middle to middle class semi-residential suburb of Miami, Florida. Although the children were born in the community, however, most of the parents migrated from Cuba. The school is K-6, with about forty-five percent of the school enrollment being Cuban-American. About twenty-five percent of the staff are native Spanish speakers. The English oral language proficiency for this group is limited to near fluent for 1st graders, totally fluent for 3rd graders and 5th graders.

(5) **Chinese-American.** This ethno-linguistic group comes from a northern California community near the San Francisco Bay area. The school is a K-6 inner city school. The school population is primarily Chinese-American and

many of the teachers and all of the aides are Chinese-American. However, not all of the teachers speak Chinese (Cantonese). English oral language proficiency for 1st graders on average was limited English, near fluent to totally fluent for 3rd graders, and near fluent for 5th graders.

(6) *Franco-American*. The Franco-American children come from a rural-agricultural area in the backwaters of southern Louisiana. The (K-5) school is ninety-five percent French. While most of the teachers are from the area and speak French, the primary language in the school is English. The English oral language proficiency for the 1st graders is limited to near fluent and near fluent for 3rd and 5th graders.

(7) *Native American*. The Navajo children are from middle New Mexico, just south of Santa Fe. All of the children tested live on the Indian reservation and virtually all commute to the school by truck. The rural school is approximately sixty percent Native American. The aides are Navajo but the teachers are Anglo and Chicano. The English oral language proficiency of the children in the 1st and 5th grades is limited English on the average. The 3rd graders are near fluent English speakers.

(8) *Anglo-American*. The children in this group are from a northern California community south of San Francisco. The community is industrial-commercial and is of low-middle to middle SES. The school is K-6 and is primarily Anglo. The English oral language proficiency for these children is total English fluency at all grade levels.

SUBJECTS

A breakdown of the Ns for the subjects in this study by grade is given in Table 1. Roughly the same number of children of each sex were selected from each ethno-linguistic group in grades 1, 3, and 5. The children were generally of the same age/grade except for the Mexican-American and Chinese-American groups which tended to be somewhat older. The average ages in months for grade one was 79.66, $SD = 6.96$, for grade three was 106.58, $SD = 9.92$, and for grade five was 129.67, $SD = 8.53$. Subjects' ethno-linguistic background was determined by school personnel's knowledge of the Ss.

PROCEDURE

The data reported here are part of a larger ongoing study. The present data consist of S's performance on several different tests. In all, the data represent 14 different tests and/or subtests. The order of administration of the tests was varied. Children were tested in their preferred language except for the achievement tests, which were administered in English. Children were tested by extensively trained local examiners who were selected to match the children's ethnolinguistic group. In addition to standardized achievement tests, which

often varied with site and grade, S's were also tested on neo-Piagetian development, cognitive style and language proficiency. In the following, these tests will be described.

TABLE 1
Sample Sizes of Ethnolinguistic Groups by Grade
for Regression of Achievement on Cluster Scores

ETHNOLINGUISTIC GROUP	GRADE			TOTAL
	1	3	5	
Urban Mexican-American	15	11	13	39
Rural Mexican-American	24	19	16	59
Puerto Rican-American	21	11	17	49
Cuban-American	32	29	18	79
Chinese-American	22	33	13	68
Franco-American (Cajun)	27	23	22	72
Native American (Navajo)	8	11	13	32
Anglo-American	44	51	50	145
TOTAL	193	188	162	543

INSTRUMENTS

The *Language Assessment Scales* (LAS) measures English oral language proficiency (De Avila & Duncan, 1977). The test represents a convergent language assessment procedure consisting of the following subtests: oral production (story re-telling), phoneme discrimination (minimal pairs) and production, vocabulary, and oral comprehension. The combined subtests yield a composite score which represents S's level of oral language proficiency corresponding to totally fluent English, near fluent English, limited English, non-English with partial English language deficiency, or non-English with total English language deficiency. However, since each subtest represents a different aspect of language, each subtest score was used in the analysis.

The *Cartoon Conservation Scales* (CCS) is a neo-Piagetian paper-pencil measure of intellectual development (De Avila, 1977). There are two levels (K-3 and 4th-7th grade), each consisting of six different Piagetian tasks. Two of the tasks, egocentricity and conservation of substance, overlap on the two levels. Thus, for the present study only these tasks were included in the analysis. Egocentricity-perspectivism requires that S be able to recognize other visual perspectives than the one visible from S's vantage point. Conservation of

substance represents the traditional Piagetian conservation task. It requires that the subject recognize the invariance of amount of substance when its form is transformed. A more detailed description of the tests and their psychometric properties and validity are described elsewhere (e.g., De Avila, Havassy and Pascual-Leone, 1976; De Avila & Pulos, 1978; De Avila, 1977; De Avila et al., 1978; Ulibarri, 1974).

The *Children's Embedded Figures Test* (CEFT) was adapted by Karp and Konstadt (see Witkin et al., 1971) as a measure of perceptual disembedding. The test requires S to locate a previously seen simple standard figure within a larger complex figure. S's score on the CEFT is determined by the number of first correct choices made. Higher scores represent greater field independence.

The *Draw A Person Test* (DAP) used in this study is a version based on Witkin's (1962) 5-point sophistication-of-body concept scale. It is used to measure S's level of primitiveness-sophistication of body concept. This version is considered to be a measure of cognitive style.

The *Matching Familiar Figures Test* (MFFT) is another measure of cognitive style. It refers to the construct of conceptual tempo and is said to assess the dimension of reflectivity-impulsivity (Kagan, 1965; Kagan et al., 1964). The MFFT requires S to match a standard picture of a figure to one of six variants. The conceptual tempo classification is based on two scores: latency to first response and number of errors, with no more than five errors per problem allowed.

A *Teacher Questionnaire* (TQ) was developed for this study based on the work of Castañeda, Herold and Ramirez (1974). It consists of a number of items generated from the Castañeda (et al.) discussion of FD/FI behaviors and from their teacher-observation rating forms. The TQ represents an attempt to provide an observationally based measure of three cognitive style behaviors involving S's school adjustment, dependence, and social reserve. A more complete description of the TQ and the rationale for its construction can be found in Fleming, De Avila, & Duncan, (1979). In order to present a clearer picture of the type of behaviors assessed by the TQ, a copy of the results of a Factor Analysis of the 40 items which make up the questionnaire has been included in Appendix A of this report.

The *Standardized Achievement Tests*—The use of a particular achievement test was dependent upon the test being used in the school district where data were collected. Thus several different tests were used for the analyses. Because of the differing characteristics of the scales in each test, all test data were converted to standard scores based on the test's published norm group mean at each level and the sample's standard deviation. This procedure results in a deviation score relative to the norm group mean of the particular test. It is recognized that group difference in deviation scores are dependent upon the

characteristics of the norming population. Nevertheless, they are interpretable in relationship to the normed mean and thus represent each group's standing relative to this criterion. In the present analyses this does not present a problem since group comparisons are not made. However, in order to aid in the interpretation of the analyses to be presented, Table 2 gives the tests used for each ethno-linguistic group by grade.

TABLE 2
List of Achievement Tests Used to Obtain Achievement Data
for Each Ethnolinguistic Group

ETHNOLINGUISTIC GROUP	TEST		
	GRADE 1	GRADE 3 ^a	GRADE 5 ^b
Urban Mexican-American	California Test of Basic Skills (1974)	California Test of Basic Skills (1974)	California Test of Basic Skills (1974)
Rural Mexican-American	(none)	California Achievement Test (1970)	California Achievement Test (1970)
Puerto Rican-American	Standard Achievement Test (1973)	Standard Achievement Test (1973)	Standard Achievement Test (1973)
Cuban-American	(none)	Standard Achievement Test (1973)	Standard Achievement Test (1973)
Chinese-American	Cooperative Primary (1968, 1977)	Cooperative Primary (1977)	California Test of Basic Skills (1969)
Franco-American (Cajun)	(none)	Metropolitan Achievement Test (1970)	Metropolitan Achievement Test (1970)
Native American (Navajo)	(none)	California Test of Basic Skills (1974)	California Test of Basic Skills (1974)
Anglo-American	California Test of Basic Skills (1974)	California Test of Basic Skills (1974)	California Test of Basic Skills (1974)

a. Tested at Grade 2.5; norm deviations adjusted accordingly

b. Tested at Grade 4.5; norm deviations adjusted accordingly

RESULTS AND DISCUSSION

The data analyses for this study involve two steps. The first part involves a cluster analyses (or "V-analysis") of the test data described by Tryon & Bailey (1970). The second part involves the regression analyses of achievement onto the clusters identified in the first analyses. The two analyses are described in the following section.

CLUSTER ANALYSIS

The constructs used as predictors in this study involve the measures of language proficiency, cognitive development, and cognitive style. These involve 5 measures of language, 2 measures of cognitive development and 7 measures of cognitive style. However, since each measure also represents a different aspect or dimension of the constructs, they were grouped together on the basis of their similarities and differences through the procedure of cluster analysis (Tryon & Bailey, 1970). This allowed us to obtain a perspective on the nature of the constructs (since we know there is much overlap) and also to reduce the number of original, or a priori, variables. In addition, since the main objective of the study was to identify the best set of predictors, such a procedure would be consistent with the use of multiple regression for predictive purposes (Kerlinger & Pedhazur, 1973).

The results of the cluster analyses of the correlation matrix for the a priori variables is given in Table 3. The cluster analysis shown in Table 3 indicates

TABLE 3
Coefficients for Oblique Cluster Domains

VARIABLE	CLUSTER			
	I. LANGUAGE	II. COGNITIVE STYLE/DEVELOPMENT	III. CONCEPTUAL TEMPO	COMMUNALITY
Language Assessment Scales: Production	.75 ^a	.22	.15	.56
Language Assessment Scales: Phonemes	.76 ^a	.22	.26	.58
Language Assessment Scales: Lexical	.56 ^a	.05	.09	.34
Language Assessment Scales: Comprehension	.75 ^a	.37	.28	.58
Language Assessment Scales: Minimal Pairs	.28	.42	.37	.22

TABLE 3 cont.
Coefficients for Oblique Cluster Domains

VARIABLE	CLUSTER			
	I. LAN- GUAGE	II. COGNITIVE STYLE/DE- VELOP- MENT	III. CON- CEPTUAL TEMPO	COMMU- NALITY
Children's Embedded Figures Test	.10	.70 ^a	.37	.50
Draw-A-Person Test	-.09	-.54 ^a	-.27	.30
Conservation of Substance	.23	.40 ^a	.26	.18
Egocentricity	.25	.56 ^a	.33	.33
Matching Familiar Figures Test: Latency	.07	.14	.50 ^a	.27
Matching Familiar Figures Test: Errors	-.27	-.55	-.75 ^a	.59
Teacher Questionnaire: Social Adjustment	.22	.28	.25	.10
Teacher Questionnaire: Dependence	-.10	-.15	-.17	.04
Teacher Questionnaire: Social Reserve	.15	.05	.07	.02
Cluster Score				
Correlations: I	(.80 ^b)			
II	.22	(.64 ^b)		
III	.19	.34	(.58 ^b)	
Domain Validities	.90	.80	.76	

^aDenotes a key cluster defining variable. Highest loadings ($\geq \pm .40$) are boxed for readability.

^bReliabilities are inserted in the diagonal positions.

that the language measures with the exception of minimal pairs (i.e., aural phoneme discrimination), loaded on the first cluster. The CEFT, DAP and developmental measures loaded primarily on the second cluster and the MFFT (latency and error) loaded on the third cluster. The TQ tended to load equally and not very highly on all three clusters.

A clear pattern of the defining characteristics of each cluster is apparent. The first cluster is clearly language, and the third conceptual tempo. The second cluster, however, is loaded or defined by both cognitive style and cognitive developmental measures. This is not a surprising result and is, in fact, consistent with the view concerning the relationship between Piagetian tasks and the field dependence/independence cognitive style dimension (e.g., see Flavell, 1963; Pascual-Leone, 1970) and with the relationship of these two tasks with conceptual tempo.

Piaget has pointed out that conservation tasks involve an aspect of centration-decentration in which the child gradually decenters on the irrelevant cues of conservation tasks and centers more on the relevant cues. This is similar to the disembedding and self/non-self nature of FDI measures.

Pascual-Leone, on the other hand, has noted that FDI shows distinct developmental characteristics which coincide with Piagetian stages of development. In addition, the egocentricity task clearly involves a self/non-self distinction since it requires subject views other than their own.

Performance on the MFFT, on the other hand, is reported to show moderate correlations with FDI (about -.42) and developmental trends across age (Messer, 1976). The results found in this study concerning the relationship of the MFFT with CEFT errors and age were consistent with those reported by Messer (1976) and others (e.g., Hetherington and McIntyre, 1975). The results of the cluster analysis are consistent with prior results.

Thus, the second cluster, while still slightly ambiguous (because of its seemingly dual nature), is nonetheless not unfamiliar nor lacking in theoretical justification or explanation.

Given the clarity which defined the three factors, and because the minimal pairs subtest was not as clearly loaded on any one cluster, it was decided that the three clusters could best be defined by the four language subtests (excluding minimal pairs), the four cognitive style/developmental subtests, and the two MFFT classifications. In the first series of analyses, these three cluster variables were used as predictors of academic achievement by obtaining composite scores on each subject for each cluster. A cluster score was computed by taking the product of the subject's z-score on the a priori variable and summing these across those a priori variables which defined the cluster. The following represents the results of the regression of these cluster scores on academic achievement. The influence of teacher perception was included in a second series of regression analyses. These results will be discussed following the presentation of the results of the first series of regression analyses.

PREDICTING ACADEMIC ACHIEVEMENT

The prediction of academic achievement from the three cluster factors was based on a stepwise multiple regression analysis. A stepwise solution was selected since it results in the best set of multiple predictors without redundancy

(Kerlinger & Pedhazur, 1973). The stepwise analyses were performed a) for all sites and grades combined, b) within grade levels, and c) within ethno-linguistic groups. An analysis within grade for each ethno-linguistic group was not possible because of the small N's such a breakdown would produce. The stepwise analysis was done for language, reading and math achievement criterion measures. In the following, the three analyses will be described according to the achievement area being predicted. For each achievement area a table of results is presented. Each table contains the analyses of sites, grade and ethno-linguistic group. The tables give, for each step in the stepwise regression, the Multiple R, R-Squared (variance in achievement accounted for by the predictors), adjusted R-squared (correction for bias in R-Squared, Kerlinger & Pedhazur, 1973, p. 282), simple correlation and level of significance. For each analysis a dashed line indicates the point at which the increase in the adjusted squared-multiple correlation due to the addition of the variable in the next step no longer adds to the prediction, i.e., the point at which the increase is not statistically significant ($p < .05$).

Language Achievement. The prediction of language achievement from the cluster score regression is given in Table 4. For all sites combined, language proficiency alone is the best predictor of language achievement with forty-three percent of the variance in language achievement shared with the language measure. Neither of the other clusters add to this prediction. The consistency of this finding is perhaps not surprising in itself. The fact that this type of analysis has never before been attempted is, however, surprising in the light of this result.

For the within-grade analysis, language also figured to account for the greater portion of the multiple-R (67-68%) than either of the other two factors. For grade five, language and impulsivity together prove to be the best predictors. It should be noted that although impulsivity "statistically" adds to the prediction, the increase in the adjusted R-squared amounts to just two percent. Thus language, for all practical purposes, can also be considered the best predictor within grades.

A far more interesting result, however, is found within the ethno-linguistic group. Here different patterns of prediction are found in each ethno-linguistic group for which language achievement data were available; no achievement data was available for the Puerto Rican-American, Cuban-American, Franco-American and Native American language groups. For the Urban Mexican-American group the Style/Development cluster accounted for 32% of the variance in language achievement. The addition of language proficiency increases this amount by 7%. In the Rural Mexican-American sample, no single cluster or combination of cluster variables predicted language achievement. For the Chinese-American group, language and impulsivity produced a multiple R of .78, accounting for 57% of the adjusted language achievement variance. The Anglo-American sample produced only the zero-order R of .39

TABLE 4

Summary of Cluster Score Regression for Prediction of Language Achievement

	STEPS	CLUSTER VARIABLE	MULTIPLE CORRELATION	SQUARED MULTIPLE CORRELATION	ADJUSTED SQUARED MULTIPLE CORRELATION	SIMPLE CORRELATION	p-VALUE
I. All Sites and Grades (N = 227)	1	Language	.65	.43	.42	.65	.001
	2	Impulsivity	.66	.43	.43	.13	.001
	3	Style/Development	.66	.43	.43	.02	.001
II. Within Grade Level							
1. Grade 1 only (N = 57)	1	Language	.66	.44	.43	.66	.001
	2	Style/Development	.67	.45	.43	-.08	.001
	3	Impulsivity	.67	.45	.42	-.16	.001
2. Grade 3 only (N = 77)	1	Language	.67	.45	.44	.67	.001
	2	Impulsivity	.68	.46	.44	.35	.001
	3	Style/Development	.68	.47	.44	.02	.001
3. Grade 5 only (N = 93)	1	Language	.68	.46	.46	.68	.001
	2	Impulsivity	.70	.48	.47	.14	.001
	3	Style/Development	.70	.50	.48	.06	.001

TABLE 4 CONT.

Summary of Cluster Score Regression for Prediction of Language Achievement

		STEPS	CLUSTER VARIABLE	MULTIPLE CORRELATION	SQUARED MULTIPLE CORRELATION	ADJUSTED SQUARED MULTIPLE CORRELATION	SIMPLE CORRELATION	p-VALUE
III. By Ethnolinguistic Group								
1. Urban Mexican-American (N = 31)	1		Style/Development	.31	.09	.01	-.05	.351
	2		Language	.28	.08	.02	.09	.248
	3		Impulsivity	.26	.07	.04	.26	.127
2. Rural Mexican-American (N = 37)	1		Impulsivity	.66	.44	.38	.16	.001
	2		Language	.66	.43	.39	.50	.001
	3		Style/Development	.58	.34	.32	.58	.001
3. Puerto Rican-American			(No language data available for this group)					
4. Cuban-American			(No language data available for this group)					
5. Chinese-American (N = 21)	1		Language	.65	.42	.40	.65	.001
	2		Impulsivity	.78	.61	.57	.44	.001
	3		Style/Development	.79	.63	.57	.36	.001

6. Franco-American
(Cajun)

(No language data available for this group)

7. Native-American
(Navajo)

(No language data available for this group)

8. Anglo-American
(N = 138)

1	Style/Development	.26	.15	.15	.39	.001
2	Language	.40	.16	.15	.28	.001
3	Impulsivity	.40	.16	.14	.19	.001

Note: Dashed line (----) indicates the point at which the increase in the adjusted squared-multiple correlation is less than .02 or $p > .05$.

for Style/Development, which accounted for 15% of the variance for this group. It is interesting to note that language adds nothing to the prediction for Anglo-Americans, but adds 7% to that of Urban Mexican-Americans.

Reading Achievement. The regression of reading achievement onto cluster scores is given in Table 5. For all sites language proficiency is again the single best predictor with Style/Development "statistically" adding to this prediction. Again, however, the addition of Style/Development adds only 2% to the variance already accounted for by the language cluster. Additionally, the zero-order or simple correlation of the Style/Development cluster alone accounts for only 1.2% of the variance. Although statistically significant, the overall prediction is not that good since only 8% of the total variance in reading achievement is shared with the Language and Style/Development clusters combined.

Within grade levels, significant prediction of reading achievement was obtained in grades one and three. In grade one, language and Style/Development produced a multiple R of .57 with an adjusted R^2 of .31, or 31% of the variance accounted for. The major portion of the total prediction is due to language since it correlates .54 with achievement and accounts for 28% of the variance by itself. In grade three, language was the best predictor, but accounts for only 12% of the variance.

Within ethno-linguistic groups several different patterns of prediction occurred. For the Urban Mexican-American and Anglo-American groups the Style/Development cluster alone was the best predictor in reading achievement. This cluster, however, is a more efficient predictor for the Anglo-American group since it accounts for 16% of the variance in reading achievement in contrast to 10% in the Urban Mexican-American sample. It is also of note that the direction of prediction is reversed, i.e., while a positive relationship is reported for the Anglo group, a negative one is found for the Urban Mexican-American group. This means that whereas field independence is associated with higher achievement in the Anglo group, field dependence is associated with higher achievement in the Urban Mexican-American group.

For the Rural Mexican-American group the three clusters combined produce a multiple R of .75 which accounts for 52% (adjusted) of the total variance in reading achievement. While it is not possible to interpret the independent contributions based on the analysis of Table 5, it is clear that language with a simple correlation of .66 accounts for 42% of the variance by itself.

In the Puerto Rican-American group, language was the only significant predictor. With a multiple R of .50 it accounted for 22% of reading achievement variance.

In the Chinese-American and Franco-American groups, language and Style/Development clusters produced the best prediction with a multiple R of .43 and .41 respectively. However, the amount of adjusted variance accounted for in the Chinese-American group (26%) was twice that of the Franco-

TABLE 5

Summary of Cluster Score Regression for Prediction of Reading Achievement

	STEPS	CLUSTER VARIABLE	MULTIPLE CORRELATION	SQUARED MULTIPLE CORRELATION	ADJUSTED SQUARED MULTIPLE CORRELATION	SIMPLE CORRELATION	p-VALUE
I. All Sites and Grades (N = 408)	1	Language	.25	.06	.06	.25	.001
	2	Style/Development	.29	.08	.08	-.11	.001
	3	Impulsivity	.29	.08	.08	-.02	.001
II. Within Grade Level							
1. Grade 1 only (N = 84)	1	Language	.54	.29	.28	.54	.001
	2	Style/Development	.57	.33	.31	.07	.001
	3	Impulsivity	.58	.33	.31	-.08	.001
2. Grade 3 only (N = 177)	1	Language	.34	.12	.12	.34	.001
	2	Style/Development	.35	.13	.12	-.05	.001
	3	Impulsivity	.35	.13	.11	.08	.001
3. Grade 5 only (N = 147)	1	Language	.23	.05	.05	.23	.004
	2	Style/Development	.24	.06	.05	.06	.011
	3	Impulsivity	.25	.06	.04	.04	.027

TABLE 5 CONT.

Summary of Cluster Score Regression for Prediction of Reading Achievement

		STEPS	CLUSTER VARIABLE	MULTIPLE CORRELATION	SQUARED MULTIPLE CORRELATION	ADJUSTED SQUARED MULTIPLE CORRELATION	SIMPLE CORRELATION	p-VALUE
III. By Ethnolinguistic Group								
1. Urban Mexican-American (N = 37)	1		<u>Style/Development</u>	.35	.12	.10	-.35	.032
	2		Impulsivity	.38	.14	.09	.13	.076
	3		Language	.38	.15	.08	-.25	.151
2. Rural Mexican-American (N = 31)	1		Language	.66	.44	.42	.66	.001
	2		Impulsivity	.73	.53	.50	-.23	.001
	3		<u>Style/Development</u>	.75	.57	.52	.29	.001
3. Puerto Rican-American (N = 27)	1		<u>Language</u>	.50	.25	.22	.59	.007
	2		Style/Development	.50	.25	.19	.33	.026
	3		(Partial correlation with impulsivity too small for further computation.)					
4. Cuban-American (N = 39)	1		Style/Development	.31	.10	.07	.31	.053
	2		Impulsivity	.35	.12	.07	-.20	.099
	3		Language	.36	.13	.05	.10	.188
5. Chinese-American (N = 72)	1		<u>Language</u>	.49	.24	.23	.49	.001
	2		Style/Development	.53	.28	.26	.42	.001
	3		Impulsivity	.53	.28	.25	.14	.001

6. Franco-American (Cajun) (N = 40)	1	Language	.34	.12	.09	.34	.031
	2	Style/Development	.41	.17	.13	.30	.031
	3	Impulsivity	.45	.20	.13	.01	.044
7. Native-American (Navajo) (N = 24)	1	Language	.54	.29	.26	.54	.005
	2	Impulsivity	.63	.39	.34	.49	.004
	3	Style/Development	.64	.41	.33	.16	.010
8. Anglo-American (N = 138)	1	Style/Development	.40	.16	.16	.40	.001
	2	Language	.43	.18	.17	.32	.001
	3	Impulsivity	.43	.18	.15	.18	.001

Note: Dashed line (----) indicates the point at which the increase in the adjusted squared-multiple correlation is less than .02 or $p > .05$.

Americans (13%). In both groups, language alone seems to be the best practical predictor since only 3% and 4% of accounted variance is added by the inclusion of Style/Development to the prediction equation.

In the Native American group, language and impulsivity produced a multiple R of .63. Thirty-four percent of the variance is accounted for by this combination, of which the language cluster alone accounts for 26%.

Math Achievement. The regression of math achievement on the cluster scores is given in Table 6. Here language and impulsivity provide the most efficient prediction of math achievement. However, the obtained multiple R is .26 and the total variance accounted for is only 6%. Thus even though statistical significance was found (perhaps due to large N) the prediction does not appear to be of any practical significance.

Within the 1st and 3rd grades, language proficiency was the only predictor of math achievement, although the amount of variance accounted for was only 5% and 3% respectively. In the 5th grade all cluster factors combined predict to math, but the total prediction results in even less variance accounted for (5%) than for all sites combined.

Within the ethno-linguistic group, statistically significant relationships were obtained for the Rural Mexican-American, Puerto Rican-American and Chinese-American groups. For the Rural Mexican-American group, impulsivity and language produce a multiple R of .73, accounting for 53% of individual differences in math achievement. In the Puerto Rican-American and Chinese-American groups, language and Style/Development result in the best prediction, accounting for 29% and 30% of the variance respectively. The relationship is virtually identical in both groups and for both tests. That is, they are equally correlated with math achievement.

In general, the prediction of math achievement from the set of cluster variables is meaningful only for three of the eight groups: Rural Mexican-American, Puerto Rican-American and Chinese-American. For the Rural Mexican-Americans, the child who is more reflective and proficient in English tends to show higher math achievement. In the Puerto Rican-American and Chinese-American groups, the language proficiency and Style/Development (or developmental level) of the child tends to be related to higher math achievement. For other ethno-linguistic groups these constructs do not appear to be meaningfully related to math achievement.

FINDINGS AND SECOND SERIES OF ANALYSES

The main purpose of this study was to examine the relative importance of language and cognitive style/development variables in predicting academic achievement. The first important finding was that cognitive style, as defined here, was not an important predictor of academic achievement relative to language proficiency. For all groups combined and within grade levels, neither

TABLE 6

Summary of Cluster Score Regression for Prediction of Mathematics Achievement

	STEPS	CLUSTER VARIABLE	MULTIPLE CORRELATION	SQUARED MULTIPLE CORRELATION	ADJUSTED SQUARED MULTIPLE CORRELATION	SIMPLE CORRELATION	p-VALUE
I. All Sites and Grades (N = 402)	1	Language	.21	.04	.04	-.21	.001
	2	Impulsivity	.26	.07	.06	-.18	.001
	3	Style/Development	(Partial correlation with Style/Development too small for further computation)				
II. Within Grade Level							
1. Grade 1 only (N = 83)	1	Language	.25	.06	.05	-.25	.022
	2	Style/Development	.29	.08	.06	.20	.029
	3	Impulsivity	.29	.09	.05	.11	.061
2. Grade 3 only (N = 174)	1	Language	.20	.04	.03	-.20	.008
	2	Impulsivity	.22	.05	.04	-.14	.013
	3	Style/Development	.23	.05	.04	.04	.022
3. Grade 5 only (N = 145)	1	Style/Development	.17	.03	.02	.17	.042
	2	Language	.22	.05	.03	-.15	.028
	3	Impulsivity	.26	.07	.05	-.12	.015

TABLE 6 CONT.

Summary of Cluster Score Regression for Prediction of Mathematics Achievement

	STEPS	CLUSTER VARIABLE	MULTIPLE CORRELATION	SQUARED MULTIPLE CORRELATION	ADJUSTED/ SQUARED MULTIPLE CORRELATION	SIMPLE CORRELATION	p-VALUE
III. By Ethnolinguistic Group							
1. Urban Mexcian-American (N = 32)	1	Style/Development	.28	.08	.05	-.28	.116
	2	Impulsivity	.33	.11	.05	.20	.192
	3	Language	.33	.11	.01	-.17	.352
2. Rural Mexcian-American (N = 31)	1	Impulsivity	.60	.36	.34	-.60	.001
	2	Language	.73	.53	.50	.31	.001
	3	Style/Development	.73	.53	.48	-.04	.001
3. Puerto Rican-American (N = 26)	1	Language	.51	.26	.23	.51	.006
	2	Style/Development	.59	.35	.29	.50	.000
	3	Impulsivity	.62	.39	.30	.25	.010
4. Cuban-American (N = 39)	1	Impulsivity	.22	.05	.02	-.22	.183
	2	Style/Development	.24	.06	.00	.13	.358
	3	Language	.24	.06	.00	.03	.553

5. Chinese-American (N = 72)	1	Language	.50	.25	.24	.50	.001
	2	Style/Development	.56	.32	.30	.46	.001
	3	Impulsivity	.56	.32	.30	.14	.001
6. Franco-American (Cajun) (N = 40)	1	Style/Development	.19	.04	.01	.19	.240
	2	Language	.23	.05	.00	.17	.359
	3	Impulsivity	.24	.06	.01	.16	.529
7. Native-American (Navajo) (N = 23)	1	Impulsivity	.34	.12	.07	-.34	.100
	2	Style/Development	.47	.22	.15	.14	.070
	3	Language	.47	.22	.11	-.06	.158
8. Anglo-American (N = 139)	1	Impulsivity	.08	.01	.00	-.08	.345
	2	Style/Development	.11	.01	.00	.03	.417
	3	Language	.12	.01	.00	-.01	.610

Note: Dashed line (----) indicates the point at which the increase in the adjusted squared-multiple correlation is less than .02 or $p < .05$.

the cognitive style/developmental factor nor the impulsivity factor contributed meaningfully (in terms of additional explained variance) to the prediction of academic achievement in any of the three areas of language, reading or math achievement.

In contrast, not only was language included in virtually all of the significant predictions, but the prediction equations tended to account for a meaningful amount of the explained variance in achievement. Thus, as defined by the present instrumentation, the importance of the cognitive style dimension in academic achievement was not supported in the study. In particular, the FDI dimension defined by the CEFT, DAP and developmental variable was a better predictor than language in only 5 of 32 analyses (or 5 of 24 that were significant). In contrast, language proficiency was a significant predictor in 19 of 32 analyses (or 19 of 24 that were significant).

Moreover, when a second regression analysis was conducted which included the three Teacher Questionnaire variables in addition to the three cluster scores, the results indicated that school adjustment, dependence and social reserve were better predictors of achievement than style/development. In some cases they were even more efficient than language proficiency. In virtually every instance, regardless of achievement area or ethno-linguistic group, TQ variables tended to have the effect of removing style/development from the prediction altogether. The TQ variables were particularly efficient in the Urban Mexican-American group, where it removed style/development and showed significant prediction of achievement when none was found previously. In general, predictions which were not significant became so when TQ variables were entered into the prediction equations.

It should be noted that a criticism of these interpretations might be made because of the small sample sizes relative to the number of predictors (i.e., Nihm's law, see Marscuilo & Levin, 1978). However, the above interpretations are based on the adjusted multiple R-squared and not on statistical significance or R-squared per se. Thus, the statistics obtained should represent conservative and unbiased estimates.

Probably of most significance with regard to the above finding, is that whereas many researchers report a significant relationship between degree of FDI and achievement, they fail to take into account oral English language proficiency. The data reported here are significant in that they show that when language proficiency is taken into account, FDI or cognitive style, at least as measured here, is of little significance in terms of its predictive validity. Additionally, when TQ variables were entered into the prediction, style/development was no longer important for any of the groups. Children who have higher levels of English language proficiency tend to have higher levels of achievement. And, children who have higher status with regards to teacher perceptions, show higher achievement. This same statement cannot be made of either cognitive style dimension.

A second finding concerns the within-group analyses. Here the results were not as clear-cut since different patterns of predictions occurred for different ethno-linguistic groups and for different areas of achievement. Nevertheless, the results indicate that a clear pattern of prediction regarding cognitive style does not emerge, so that any conclusion regarding the importance of this construct with respect to particular ethnolinguistic groups is not supported. With regard to the present set of predictors, style/development showed constancy as a predictor only for the Anglo-American group. Again, however, when TQ was included, style/development was no longer important even for the Anglo-American group.

In the two Mexican-American samples cognitive style was significant only in the Urban Mexican-American sample. It was a significant predictor of achievement in language and reading, but not math. However, for reading it did not account for a meaningful amount of the variance and for language achievement, language proficiency is virtually as good a predictor as cognitive style. Even more noteworthy is the fact that the relationship is reversed in this group for predicting language and reading. This is probably indicative of the instability of the cognitive style construct that is so often reported in the literature. Nevertheless, when teacher perception of the student is entered into the analysis, style/development drops out of the regression. For Rural Mexican-Americans, style/development was not a meaningful predictor. These results support the position that the Mexican-American population is not a homogeneous one.

In addition, it should be noted that the pattern of prediction in the Urban Mexican-American sample is somewhat similar to that of the Anglo-Americans. Overall, this finding is interpreted to mean that cognitive style is more important (all it not too important) in these groups than in Rural Mexican-American groups. This, together with the teacher judgment data, suggests that cognitive style is probably important only with respect to teacher judgments and when language proficiency is no longer a factor, such as in the case of the Anglo-American children.

A general finding for all ethno-linguistic groups was that language was the most important predictor of achievement relative to the other factors in this study. There were, of course, some exceptions. For example, with Anglo-Americans and Cuban-Americans, English language proficiency did not figure into the predictions at all, which is entirely understandable given the fact that both groups were totally English proficient. Cognitive style was the only significant and meaningful predictor of Anglo-American achievement and although the style/development factor significantly predicted to Urban Mexican-American reading and language achievement, the correlations were reversed. This indicates, at least for this particular sample, that the cognitive style dimension does not preclude higher levels of achievement, which is consistent with Saarni's (1973) finding for sex differences. Finally, when teacher percep-

tion of the student is included, even language, in some cases, becomes less important. It appears that language proficiency and teacher perceptions are highly important variables in predicting achievement for language minority children.

INTERPRETATION OF THE FINDINGS

Of major consideration is that the interpretations of the findings of this study must be made within the framework of statistical prediction. Basically, this places two major restrictions on any interpretations. First, the significance of the multiple R 's are only meaningful in terms of their predictive values and not in terms of explanation. Thus, the fact that language proficiency predicts better than style/development and impulsivity does not mean that language is more important in terms of explaining the cause of the prediction. By the same token, however, the fact that cognitive style, in general, was not an efficient predictor does not support the hypothesis that it is a significant causal factor in academic achievement as has been claimed elsewhere.

Second, no attempt should be made to interpret a particular variable's individual importance. Thus the increments to R -squared do not represent the sole effects of a particular variable since the variables themselves are correlated. The predictive model simply determines the best set of predictors and does not rule out the effects or joint effects of particular variables. In addition, the relative importance of these predictors can only be interpreted within the particular set of variables used.

In terms of practical considerations it must also be kept in mind that the analyses were restricted by sample sizes so that regression could not be made within age group for each ethno-linguistic group. On the other hand, the constancy of language proficiency as a significant predictor within age groups (and across ethnolinguistic groups) indicate that this does not appear to present too much of a problem. But it is by no means completely ruled out.

Finally, as noted elsewhere (Duncan & De Avila, 1979), the two measures of performance provided by the CEFT and DAP together do not necessarily constitute a measure of FDI. However, since the two cognitive style clusters (style/development and impulsivity) correlate higher with each other than with language proficiency (see Table 2), there is no loss of generality in the statement that the results of this study do suggest that language proficiency is a better predictor of school achievement than cognitive style in general.

EDUCATIONAL IMPLICATIONS: POLICY AND TREATMENT ISSUES

The results of this study indicate that language proficiency is a more important predictor of academic achievement relative to cognitive style. However, this does not necessarily lead to the conclusion that the problems of

low academic achievement of language minorities can be solved simply by improving English language instruction. The error in this interpretation of these data would follow from a failure to appreciate the restricted applicability of the particular predictive model employed, and by a further failure to appreciate the complex interaction between language function and linguistic education as is evidenced in many ESL approaches. Because of the potential importance of these findings for future policy recommendations, further discussion on this latter issue would seem warranted.

Language can be viewed from a number of perspectives depending on purpose. To a large degree, differences between these perspectives are a function of discipline, method or unit of analysis. Unfortunately, the study of language, as related to language minority students, has not been particularly systematic. Moreover, investigators have seldom conducted their investigations in terms of any attempt to clarify language issues as they relate to specific policy issues.

This has led to a confused and often difficult situation for educators who are asked to implement policies affecting the provision of services to language minority students. The problem is particularly evident in light of the lack of any consistent definition as to either what constitutes "limited English-speaking ability" or even what constitutes a "bilingual program." This problem has direct ramifications across virtually every aspect of bilingual education.

By the same token, studies on the relation between bilingual language functioning and other variables have suffered and produced equivocal results because of the failure to accurately assess the linguistic character of the different "bilingual" and "monolingual" populations prior to making comparisons. For example, De Avila and Duncan (1979) reviewed over one-hundred studies on bilingualism and found only two which actually controlled for the relative linguistic proficiency of the comparison groups.

It therefore seems obvious that basic research as to the nature of language and its relation to achievement in the schools is important. The present research can be viewed as a crude beginning in this direction.

The importance of this discussion, of course, follows from the Supreme Court decision (*Lau vs. Nichols*). The immediate underlying presumption upon which the courts based their ruling and from which bilingual education (Title VII) draws its direction is that the inability to speak English is directly associated with low school achievement. Supportive evidence for this position is based on numerous sources where the academic achievement of language minority children is found to be substantially below that of mainstream children (e.g., Anderson, 1969; Cervantes, 1976; Crane, 1977; National Bureau of Educational Statistics, 1976; United States Commission on Civil Rights, 1971).

One is immediately struck, however, by the nature of the assumptions regarding the nature of the relation of language functioning to learning in the

context of the schools. These assumptions are particularly evident in a review of Title VII legislation, guidelines, and other policy recommendations such as those found in the Lau Remedies (see Office for Civil Rights, 1975).

These assumptions are particularly crucial given the fact that the relationship between language functioning and school achievement has not clearly been demonstrated other than to show that there is a co-occurrence of "poor standard English" and "poor achievement." Even as recently as 1977 in the National Assessment of Educational Progress (NAEP) Crane notes that the effect of language proficiency on achievement is not known (Crane, 1977). Again, the present study is only a beginning.

The supposition that English language proficiency is at the heart of the problem is a common presumption of not only the legislative bodies, but also of our schools—even prior to Title VII. Nevertheless, an actual relationship to learning and to teaching considerations is only slightly more clear today than it was 10 years ago. This is readily apparent by the failure of both the schools and the legislative bodies to consider and deal with the full extent of linguistic heterogeneity found in the schools. For example, consider the child who has difficulty functioning in either the home language or English exclusively. Precious little is known regarding the "best treatment" for these children, and yet pending legislation in California (A.B. 690) has taken the position that schools should not be required to provide bilingual instruction other than native language maintenance. Basic skills instruction is to be given in the language of the school, i.e., in English.

The basis for this type of legislation is not educational nor linguistic. On the other hand, however, there is recent research which indicates that native language instruction may have more beneficial effects both in terms of overall bilingual language development and academic achievement. In this context it is important to note that language proficiency as measured here concerned only English proficiency and did not take into account the child's native language proficiency. Recent studies by Duncan and De Avila (1979), Swaine and Cummins (1979) and Skutnabb-Kangas (1979), as well as earlier work by Peal and Lambert (1962), suggest that instruction in the child's native language is more likely to result in improved achievement. In particular, Swain and Cummins and Skutnabb-Kangas report higher levels of achievement in both first and second language when instruction is initially provided in the child's native language, and when the child's language holds a high status in the home and community.

Thus, despite the fact that there is evidence to the contrary (e.g., De Avila and Duncan, 1976, and De Avila and Duncan, 1979, for a review), our present state of knowledge concerning the role of language and achievement is apparently not well founded enough to formulate policy recommendations which lead to automatically successful programs.

Part of the problem is given by the fact that the role of language and cognition in general is itself not clearly agreed upon (Cazden, 1972). For

example, Cazden discusses four issues which are controversial, two of which seem critical to bilingual education. These issues concern, 1) whether a person's thought is affected by the particular language forms or speech patterns with which he is familiar (L_1 versus L_2) and, 2) which develops first, the nonverbal idea or the words to express it? Both of these questions have important practical implications for research in language functioning.

For example, the first question concerns the well-known Worfian hypothesis (1956) that culture determines language which in turn influences, if not determines, thought processes. The relationship of this hypothesis to bilingual education is implicit in the view that the inability to speak English is directly associated with achievement. The crucial issue, however, is not that this assumption is made, but that it leads to the further assumption that no learning can take place until language proficiency is attained—i.e., that language determines cognition. The fact is, however, that such a position, at least as far as monolinguals are concerned, is not supported by current development in language research and cognitive functioning (Rosch, 1975, 1973; Ervin-Tripp, 1966; Piaget, 1971; Duncan and De Avila, 1979).

In contrast, Piaget has placed more emphasis on cognitive development as the primary factor in language acquisition and language development, with later emphasis on a more balanced interaction between the two. To Piaget, cognition develops out of actions and, while language contributes to further development, it is the use of language that is determined by development and not the other way around (Cazden, 1972).

The second issue is related to the first, but adds to the confusion in our understanding of language and thought processes of non-English-speaking minority children. It is most readily apparent in our approach to measuring and judging achievement.

For example, the failure of a child to demonstrate knowledge of a particular word does not necessarily imply the child does not have the "non-verbal idea." At the same time, the ability to express the "word" does not mean that the child has the idea. Many examples can be found in the literature which demonstrates children's propensity for the usage of words without an understanding of the meanings (Piaget, 1971; Cazden, 1976, 1972). Yet, all too often we base our decisions on the basis of their ability to perform on such tasks. One way to avoid many of the above problems is to recognize a distinction between form and function, or what Chomsky (1970) denotes as "deep" and "surface" structure.

Surface structure is apparent in an approach to language training which emphasizes the direct language instruction approach in which form is emphasized over function.

Deep structure, on the other hand, would represent an approach in which language training takes place within a context of functional usage and in consideration of developmental characteristics. In such an approach, function would be emphasized over form.

It is interesting to note that in reviewing some studies of attempts to teach language to children, findings indicate that they have had limited success. Cazden (1972) cites the work of one of her students (Schrager) who studied children's use of negative statements exclusive of a language lesson which set out to teach the correct syntactical construction. Schrager (1971) found 350 examples (out of a total of 396) of negatives which did not necessarily fit the intended structure of the language lesson.

In another study, Cazden (1976) reports that in attempts to teach "ed" endings to young children, while every child reached criteria (i.e., "form" or "surface structure"), when followed outside of the learning (and testing) situation they never used it. Thus, while children learned the form, they had not acquired the function.

To this might be added that Cazden (1971) reviewed a number of studies which attempted to determine the extent to which linguistic coding ability (i.e., an ability to use symbols outside of the learned situation) could be assisted through intervention. From her review, Cazden concluded "... first, in the acquisition of the language use as distinct from language structure, the child is aided by what he is encouraged to say, not what he simply hears. Second, adults seem to be essential for such encouragement. Finally, there is a danger that specified training will produce too specific learning."

According to Cazden (1972) the above limitations to the structured acquisition of language are summarized in two paradoxes. First, while parents present no formally structured approach to language instruction all children seem to learn it as well as to generalize it to novel situations. Secondly, whereas all children seem to readily acquire their natural language under widely varying circumstances, attempts to provide form specific language instruction inevitably leads to limited improvement over fairly short periods of time. To this end, Edmons (1976) has recently argued that a full understanding of language acquisition will not emerge until the process is viewed within a larger developmental framework.

Edmond's argument has received strong support from two independent sources. First, Tremaine (1975) has examined "syntax as an instance of operational intelligence" defined in the Piagetian sense. The results indicated that children at the operational level performed significantly better in terms of syntax comprehension than children classified as non-operational.

What this means is that solutions which focus on English language deficits will be of limited success as long as developmental factors are not taken into account.

Second, De Avila et al. (1976) have shown that the conceptual development of over 6,000 Hispanic background children on a wide variety of Piagetian tasks is fundamentally the same as their Anglo counterparts when linguistic and socio-cultural factors are controlled. Yet, there are distinct differences in their school-related achievement. These differences, De Avila (1974) has

argued, are due to linguistic and socio-cultural biases inherent in most of the currently used educational approaches.

An important question regarding bilingual education would be to investigate the nature of language instruction as it relates to language function parameters demonstrated by different language sub-populations. It seems from our experience that because of a lack of training programs which emphasize function, and because of the ease in teaching and assessing the effects of a "form" or "surface" structure approach, that bilingual education programs are likely to emphasize the effects of language on cognition rather than vice versa. One must ask the question, "On what learning theory is bilingual education to be based?" This means going beyond the mere description of bilingual education in terms of "immersion," "partial" or "full" bilingual programs. Implicit in these models is an approach by which bilingual instruction is offered and in which a theory of learning is implicit if not explicit. By the same token, it would seem necessary to recognize the linguistic and socio-cultural heterogeneity of language minority populations and to undertake a full-ranging program of study which is sufficiently broad enough to accommodate the natural variation one finds in the schools.

Further investigations as to these factors relevant to the academic achievement of language minority children, particularly those that distinguish between achievers and non-achievers within groups, and where both English and native language proficiency are controlled, seems most warranted. In general, the data reported here suggest that school related factors as they interact with the student are of more importance than the background of the child per se. In addition, the treatment of groups as homogenous entities does not seem warranted and is not likely to produce positive results.

NOTES

Buss and Poley (1976) criticize the procedure of making group comparisons without having first established that similar factors or traits are being measured. Regarding the findings of group differences reported by Vernon (1965, 1969) they state:

Thus Vernon would seem to be in error to the extent that he has made quantitative comparisons across culture using the tests as dependent variables, when in fact it is not conclusive that various tests are tapping the same factor. (Buss & Poley, 1976, p. 178)

Buss and Poley recommend checking first to see if the factor structure remains invariant across two given cultures, and then make cross-cultural comparisons only on those factors that have been demonstrated to be structurally invariant.

However, Tryon (1979) argues that the process of assuming that a test score is indicative of a psychological trait or of drawing inferences about ability on the basis of test scores are part of the "test-trait fallacy." To assume that

test-traits are constant across widely different situations or that they can be generalized to infer group differences is fraught with danger.

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APPENDIX A

Oblique Factor Pattern for Teacher Questionnaire

ITEM TYPE ^a	BRIEF ITEM DESCRIPTION	Factors ^b					
		I	II	III	IV	V	R ²
FI	Enjoys discovering things for him/herself	78	-10	-09	-01	-03	64
FI	Is confident about ability to succeed	76	-21	-08	00	01	69
FI	Is socially mature for age	73	-08	03	-04	00	56
FI	Likes to learn new things	70	-08	13	04	16	62
I	Responds quickly to question or situations	69	-12	-39	04	07	69
I	Quick to draw inferences about how things work	68	-06	-17	18	-10	56
FI	Tends to behave independently	61	-11	00	-07	-36	45
R	Paces self in doing school work	61	-15	26	11	02	55
F	Tends to be creative	59	-18	05	08	25	57
FI	Tends to be competitive in school situations	57	-23	-23	-13	-11	56
FI	Enjoys trial and error approaches to learning	55	-02	02	14	01	36
F	Has a well developed sense of humor	54	00	-22	12	21	47
FI	Likes graphs, charts, visual aids	51	17	13	10	19	39
F	Likes to take school work home	48	-08	37	-10	21	47

APPENDIX A CONT.

Oblique Factor Pattern for Teacher Questionnaire

ITEM TYPE ^a	BRIEF ITEM DESCRIPTION	Factors ^b					
		I	II	III	IV	V	H ²
F	Enjoys fantasy and "what if" games	47	52	05	-13	16	43
I	Tends to speak out, even when unsure	45	18	-52	00	10	49
FD	Tends to cooperate in most school situations	44	-24	22	21	08	44
I	Has difficulty paying attention for long	-24	66	-26	-07	-08	65
FD	Needs to be told what to do	-32	63	-04	06	04	60
FD	Likes to be told how to do things	-24	64	12	16	08	59
FD	Distracted by irrelevant aspects of work	-28	62	-28	00	-09	63
FD	Tends to be distracted easily	-23	62	-38	08	02	65
FD	Depends on others in ambiguous situations	-31	50	07	28	-02	49
FD	Is fearful about ability to do work	-24	49	31	02	-16	47
FD	Uses teacher as information source	32	40	04	00	18	28
I	Tends to be impulsive in social situations	21	29	-66	21	-10	59
FI	Tends to be withdrawn in social situations	-22	26	54	04	-12	45

APPENDIX A CONT.

Oblique Factor Pattern: for Teacher Questionnaire

ITEM TYPE ^a	BRIEF ITEM DESCRIPTION	Factors ^b					R ²
		I	II	III	IV	V	
FI	Is self-controlled, controls emotions	32	-03	52	-14	-10	39
FI	Is "formel" in interactions with teacher	-01	09	45	22	-05	27
F	Describes things on the basis of physical properties	11	-06	-07	78	-01	65
FI	Focuses on facts as opposed to concepts	04	-03	03	73	11	58
FI	Tends to remember physical details	02	09	-03	72	-08	54
FD	Gives general answers when questioned	-23	17	05	58	03	41
FD	Enjoys computation more than concepts in math	12	-19	-01	52	05	34
FD	Prefers to work in groups	08	-03	-04	03	78	65
FI	Tends to prefer working alone	34	11	25	04	-73	62
FD	Prefers group activities over individual competition	05	18	10	09	63	50
R	Likes to "think about it" before answering	36	-08	33	21	05	36
FD	Prefers hug to grade or reward	31	37	08	09	09	24
FI	Prefers math over social studies	30	-01	-12	16	-12	15

Note: Values over 40 are boxed to simplify interpretability. Decimals are not shown.

^aAbbreviated factor names are:

- I - School Adjustment
- II - Dependence
- III - Social Reserve
- IV - Descriptive-Concrete
- V - Sociability

- ^bFD - Field Dependence
- FI - Field Independence
- R - Reflective
- I - Impulsive
- F - Filler Item

PART IIb

The Relationship of Teachers' Cognitive Styles and Ethnicity to Predictions of Academic Success and Achievement of Mexican-American and Anglo-American Students

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BACKGROUND

Differences in academic achievement seem to exist among cultural groups. The social-psychological factors which contribute to these differences are worth investigating. These factors include physiological attributes, intelligence, perception, personality characteristics and special abilities. Several cross-cultural studies support the hypothesis that cognitive style may be related to these intergroup differences.

Recent cross-cultural research on cognitive style has been conducted in a wide range of cultural settings and they have examined a variety of variables affecting cognitive style.

COGNITIVE STYLE

Individuals have different cognitive styles, that is, broad stylistic characteristics which are apparent in an individual's reaction to different situations (Anastasi, 1976; Wallach, 1962). One dimension of cognitive style is field-dependence and field-independence. This dimension characterizes a person's mode of remembering (Messick, 1970, 1976) and perceiving (Witkin, 1949). Field-dependent persons and field-independent persons differ from one another in perceptual styles, personality, intelligence and social behavior. This study is an attempt to examine the relationships of cognitive style to the education of Mexican-American children.

Field-dependent and Field-independent Individuals

Field-dependent individuals tend to exhibit a high reliance on the surrounding field, depend on authority, observe the faces of those around them for information, prefer to be with people, and experience their environment in a relatively global fashion by conforming to the effects of the prevailing field or context (Witkin, Dyk, Faterson, Goodenough and Karp, 1974). Field-dependent persons often have a strong interest in people, are found in close proximity to people and search for cues from them. Studies indicate that field-dependent subjects prefer positions which are closer to the person with whom they are interacting. In addition, they usually have sensitivity to others which help them to acquire social skills. Field-dependent individuals tend to express nonverbally a need to be close to others. Since field-dependent persons are very social and have a "with people" orientation, they frequently prefer occupations which require involvement with others, such as elementary teaching, selling or rehabilitation counseling.

In contrast, field-independent individuals tend to be more autonomous, socially detached, removed, cold, distant, analytic, oriented toward active striving and more self-aware than field-dependent persons (Ohnmacht, 1967a, 1967b, 1968). Field-independent individuals are usually more impersonal and dependent on their values and standards (Witkin, Lewis, Hertzman, Machover, Meissner and Wapner, 1972). Field-independent persons frequently favor occupations in which working with others is not essential such as astronomy or physics.

These characteristic modes of functioning for both cognitive styles are highly consistent and stable (Witkin, Goodenough and Karp, 1967).

CROSS CULTURAL COMPARISONS OF COGNITIVE STYLE

The relationship between cognitive style (field-dependence vs. field-independence dimensions) and culture has been investigated rather extensively (Witkin and Berry, 1975). Many major studies have documented the greater field-dependence of Mexican-American children as compared with Anglo-American children (Ramirez and Castañeda, 1974; Buriel, 1975; Sanders, Scholz and Kagan, 1976; Ramirez, 1973; Ramirez and Price-Williams, 1974). Canavan (cited in Kagan and Buriel, 1977) found Mexican-American children to be significantly more field-dependent than their Anglo-American classmates in kindergarten through sixth grade. Ramirez and Price-Williams (1974) compared fourth grade Mexican-American, Black-American and Anglo-American children, who were matched on socioeconomic status and religion. Their study also indicated greater field-dependence of Mexican-American children in comparison to Anglo-American children. In comparing Mexican-American and Anglo-American children in grades two, four and six, Kagan and Zahan (1974)

found that Mexican-American subjects were more field-dependent than the Anglo-American sample.

The greater field-dependence found in Mexican-American children probably reflects more traditional child rearing practices in their families which usually emphasize adherence to convention, respect for authority and a continued identity with the family (Dyk and Witkin, 1965). This contrasts with child rearing practices of the middle class Anglo-American culture which usually emphasize assertiveness, autonomy and a more individualistic sense of self-identity. Variance in socialization practices are the result of differences in cognitive style between Mexican-American and Anglo-American children (Ramirez and Castañeda, 1974). Thus, field-dependence is a function of maintenance of Mexican cultural values and social practices associated with life in traditional communities (Ramirez, Castañeda and Herold, 1974).

Many scholars assume that Mexican-American children are more socially oriented because their parents stress social integrative values. Recent conceptualizations have emphasized that there is a relationship between field-dependence and social orientation. However, recent research has failed to support the assumption that a generally more prosocial orientation of Mexican-American children is related to their field-dependence. Several studies have been conducted to survey the parents' values. Their responses to socialization questionnaires and their children's field-dependent and field-independent scores have either failed to support these conceptualizations (Holtzman, Diaz-Guerrero and Swartz, 1975; Sanders, Scholz and Kagan, 1976) or have yielded low (Canavan, cited in Kagan and Buriel, 1977) or mixed correlations (Ramirez and Price-Williams, 1974).

The relationship between the ethnic orientation of a community and the cognitive styles of its children has also been studied. Ramirez, Castañeda and Herold (1974) investigated Mexican-American children and their mothers in three types of communities: traditional, dualistic and atraditional. The traditional communities were predominantly Mexican-American in composition and the members were closely identified with the sociocultural premises of the Mexican culture. The dualistic communities were characterized by Mexican-American members who were influenced by both the Mexican and Mexican-American cultures. The atraditional communities were characterized by identification of their Mexican-American members with the values and standards of the Anglo-American culture. It was found that members from the traditional community were the most field-dependent, those from the atraditional community were the most field-independent and those from the dualistic community were intermediate between these two extremes.

Buriel (1975) examined Mexican-American families of first-, second- and third-generation immigrants from Mexico. The results indicated that first- and second-generation subjects who were less acculturated had cognitive styles

more in keeping with traditional communities than the third generation subjects who had the least direct contact with the Mexican culture.

Although most of these studies obtained significant findings, this evidence is not enough to support that field-dependence is related to the social orientation of Mexican-American children. Further research must be conducted before any generalizations can be made.

COGNITIVE STYLE AND EDUCATION

Cognitive style relates to a range of psychological and educational attributes of a person. A person's cognitive style may affect the behavior of others toward him. Therapists may use two quite different interpersonal relationships for field-dependent and field-independent patients. For example, therapists usually use more supportive therapy methods for their field-dependent patients than for their field-independent patients (Green, 1972; Karp, Kissing and Hustmyer, 1970). Karp, Kissing and Hustmyer (1970) found similar differences in treatments for alcoholic patients. In their study, therapists tended to use insight psychotherapy for field-dependent patients and drug therapy for field-independent patients. Insight psychotherapy is a brief treatment in which the therapists encourage the patient to obtain insight into his problem. On the other hand, drug therapy is a treatment in which the therapists prescribe different types of drugs to the patients, especially tranquilizers and antidepressants. Drug therapy is highly directive since the patient is told what to do, while psychotherapy is relatively nondirective.

Results of recent research studies on cognitive style include contrasts between dyads who are matched and mismatched in their cognitive style. These outcomes show that individuals with similar cognitive style describe each other in highly positive terms, while individuals with different cognitive styles have a tendency to describe each other in negative terms (DiStefano, 1969; Folman, 1973; Green, 1972). The positive effects of matching probably result from similar interests and personality attributes (Freedman, O'Hanlon, Oltman and Witkin, 1972), which would be expected to facilitate good interpersonal relationships between dyad and partners.

Knowledge of cognitive style can be applied to educational settings through matching the styles of the children with that of the content and the teacher (Witkin, Moore, Goodenough and Cox, 1977). According to Hunt (1970), it is important to find an optimum match between characteristics of children and the educational setting, including the personal characteristics of the teachers. The "match," as it is usually conceived, focuses on the type of conditions and the mode of approach which interests the child and promotes learning (Hunt, 1964, 1971). The problem of the match may be reduced by assessing children's characteristics and intellectual capacity to provide an appropriate educational setting which meets their needs and interests. For

example, a teacher-student match in cognitive style increases interpersonal attraction, whereas a mismatch does not. Interpersonal attraction is higher between teachers and students with a similar cognitive style (Oltman, Goode-nough, Witkin, Freedman and Friedman, 1975). Positive effects of matching are the results of similar interests, personality characteristics (Witkin, Lewis, Hertzman, Machover, Meissner and Wapner, 1972). The "match" in cognitive style, according to Witkin (1976), helps individuals to have a better relationship because of shared foci of interest, shared personal characteristics and similarity of communication modes. DiStefano (1970) found that cognitive and personal characteristics affected the positive and negative assessments made of one another by students and teachers.

Ramirez (1973) advocated the match between teachers and children with similar cognitive styles. He believed that cognitive style offers some interesting and suggestive insights into the dynamics of interpersonal relations between student and teacher. He suggested that field-independent teachers may be unaware of the field-dependent children's needs. Sanders and Scholz (cited in Kagan and Buriel, 1977) examined the relationship between such a match and school achievement of Mexican-American and Anglo-American children as a function of student characteristics and the interaction of these variables. In examining the relationship between the cognitive styles of teachers and children's school achievement, they postulated that the match of cognitive styles would enhance achievement. However, all students of field-independent teachers gained more than one grade equivalent, while those of field-dependent teachers gained less than one grade equivalent. Field-dependent children seemed to have benefitted from cognitive style mismatch, a finding which contradicted the expectations of experts of cognitive style.

In addition, field-independent teachers were rated by their children as significantly warmer, more rewarding and more giving of responsibility than the field-dependent teachers. This evidence fails to support the assumption that field-dependent individuals are superior in their interpersonal skills. The relationship between field-dependent teachers' warmth and the mathematics achievement gains was examined. The correlations between teacher warmth and mathematics gains indicated a significant relationship for Mexican-American children and for field-dependent children but not for Anglo-American children nor for field-independent children.

In summary, studies show Mexican-American children as more field-dependent than Anglo-American children, but some Mexican children are more field-dependent than others. The differences in cognitive style found seem to relate to the degree of traditionalism in the child-rearing community, and the generational distance of the child from migration to the United States. Both seem to indicate that the closer individuals are to a traditional Mexican (rural) culture the more field-dependent they will be.

Just as children vary in cognitive style, so, too, do teachers. The issue of whether matching children and teachers on cognitive style would enhance academic achievement or affect school is opened to question. There have been suggestions for matching field-dependent children by curriculum and teachers. There is also one study that indicates that Mexican-American children have greater academic achievement with field-independent teachers.

The existing findings on the matched effects on cognitive style need to be examined carefully. Additional research is needed to explore the importance of matching the cognitive style of teachers and students. This matching might be supportive, while it is not necessarily stimulating. The mismatching of cognitive style need not have a negative influence; it might provide challenge and enrichment for both teachers and students. The present study further explores the relationship between the match and mismatch of children and teachers on cognitive style and pupils' academic achievement.

This study was conducted to investigate the following questions: *Is there a relationship between the teachers' cognitive styles (more field-dependent or more field-independent) and/or ethnicity and the students' standardized achievement scores?* and *Is there a relationship between the cognitive style and/or ethnicity of teachers and their discrepancies in ranking matched and mismatched children in relation to academic achievement?*

METHOD

Subjects: Forty classrooms taught by female teachers were used in the study. The subjects included a total of forty second and fifth grade teachers (twenty from each grade) and a sample of their students (Mexican-American and Anglo-American) in a mid-sized city in the southwest. Twenty-two teachers were Mexican-American while eighteen were Anglo-American. Since the vast majority of the primary teachers in this school district are females, only female teachers were studied.

Several criteria were used for selecting the subjects in the study. Second and fifth grade children were selected to examine the variance between the different age levels, since there is evidence for greater field-dependence among younger children than among older children (Witkin, Dyk, Faterson, Goode-nough and Karp, 1974). The second grade children ranged in age from seven years to seven years and eleven months, while the fifth grade children ranged in age from ten years to ten years and eleven months. Six boys and six girls in these ranges were randomly selected from each teachers' classroom.

Measures: Several measures were used to collect the data in this study including the adult and child forms of the Embedded Figures Test (EFT) to measure cognitive style; the *Comprehensive Tests of Basic Skills* (CTBS) to measure basic skills in four major areas: reading, language, arithmetic and

study skills; a Teacher's Questionnaire to collect demographic information and the Student's Ranking form which asked for the ranking of students' academic achievement by teachers. The reliability estimates for the Children's Embedded Figures Test range from .83 to .90 (Karp and Konstadt, 1971), while the reliability estimate for the teachers' Group Embedded Figures Test is .82 (Oltman, Raskin and Witkin, 1971). Using the Kuder-Richardson reliability coefficients, the reliability of the *Comprehensive Tests of Basic Skills* ranges from .85 to .95 (Ahmann, 1972). To assess the reliability of the Children's Embedded Figures Test for this population, twelve second graders (six boys and six girls) and thirteen fifth graders (seven boys and six girls) were re-tested after eleven days by the same testers under similar conditions. The reliability for the second grade was .89 and for the fifth grade was .72. The validity of these instruments, according to the authoritative sources in the literature, seems adequate for the purposes for which they were utilized in this study.

Procedure: At the beginning of the school year, the adult and children's versions of the Embedded Figures Test (EFT) were administered as measures of cognitive style. The children's and teachers' cognitive style were assessed as field-independent and field-dependent based on Karp's and Konstadt's (1971) and Oltman's, Raskin's and Witkin's (1971) procedures. Children and teachers in a single class who had similar cognitive styles were considered *matched* (i.e. both were field-dependent or both were field-independent), while children and teachers in a single class who had different cognitive styles were considered *mismatched* (i.e. one was field-dependent and the other was field-independent).

After school had been in session for four weeks, the teachers were asked to use their judgement to rank their children on academic competence. The children's achievement score on the *Comprehensive Tests of Basic Skills* (CTBS), which was administered at the end of the previous academic year, was also obtained. Deviation scores, the extent to which teachers deviated in ranking their students on academic competence in comparison to students' rankings on the CTBS, were derived for each teacher.

The deviation score for each teacher was the mean of the total difference between the teacher's ranking for each child and his ranking on the CTBS with each group (matched and mismatched). The mean of the differences of the scores for the matched group was assigned to the teacher as the deviation score of the matched pupils and the mean of the differences of the scores for the mismatched group was assigned to the teacher as the deviation score of the mismatched students.

The *Comprehensive Tests of Basic Skills* (CTBS) was again administered to the children one year later. Mean scores were calculated per teacher for Mexican-American matched students and Mexican-American mismatched students. Using the Mexican-American students only and their teachers reduced

the sample of teachers from forty to thirty-six. Therefore, for purposes of this study, *only* comparisons among Mexican-American students and their teachers are reported and analyzed.

TABLE 1

Analysis of Covariance for the Achievement Scores for the Matched and Mismatched Students and Grade Levels for Teachers with Different Cognitive Styles and Ethnic Groups

SOURCE OF VARIATION	SS	df	MS	F	p
AMONG GROUPS					
Grade	.29	1	.29	.90	.35
Ethnicity	1.65	1	1.65	5.13	.03
Style	.36	1	.36	1.13	.30
Grade $\times$ Ethnicity	.00	1	.00	.01	.94
Grade $\times$ Style	.12	1	.12	.36	.55
Ethnicity $\times$ Style	.27	1	.27	.83	.37
Grade $\times$ Ethnicity $\times$ Style	.06	1	.06	.19	.67
First Covariate	19.24	1	19.24	59.83	.00
Error 1	8.68	27	.32		
WITHIN GROUPS					
M	.35	1	.35	2.36	.14
M $\times$ Grade	.30	1	.30	2.00	.17
M $\times$ Ethnicity	.11	1	.11	.73	.40
M $\times$ Style	.01	1	.01	.04	.85
M $\times$ Grade $\times$ Ethnicity	.02	1	.02	.14	.71
M $\times$ Grade $\times$ Style	.08	1	.08	.57	.46
M $\times$ Ethnicity $\times$ Style	.12	1	.12	.82	.37
M $\times$ Grade $\times$ Ethnicity $\times$ Style	.01	1	.01	.03	.86
First Covariate	8.95	1	8.95	60.06	.00
Error 1	4.02	27	.15		

LEGEND — M = Matching vs. Mismatching

RESULTS

Two research questions were posed to initiate and direct this study. An analysis was conducted to find the relationship between the teachers' cognitive styles and the Mexican-American students' standardized achievement scores. The analysis included Mexican-American students and the teachers were divided by ethnic grouping as well as by cognitive style (matched and mismatched). The results from the repeated measures analysis of covariance are presented in Table 1, while CTBS scores for the groups are shown in Tables 2 and 3.

TABLE 2

Means of Adjusted Achievement Scores for Matched and Mismatched Students for Mexican-American and Anglo-American Teachers

	MEXICAN-AMERICAN TEACHERS	ANGLO-AMERICAN TEACHERS
Matched Students	3.86	3.45
Mismatched Students	3.94	3.73

TABLE 3

Mean of Post Text Scores (Unadjusted) of Matched and Mismatched Mexican-American Students and Teachers of Different Cognitive Styles and Ethnic Groups

	FIELD-DEPENDENT TEACHERS		FIELD-INDEPENDENT TEACHERS	
	MEXICAN-AMERICAN $\bar{x}$	ANGLO-AMERICAN $\bar{x}$	MEXICAN-AMERICAN $\bar{x}$	ANGLO-AMERICAN $\bar{x}$
Matched Students	3.75	3.24	4.17	3.81
Mismatched Students	3.72	4.03	3.63	3.91

No relationship was found between the teacher's cognitive styles (field-dependent or field-independent) and the Mexican-American students' standardized achievement scores. However, Table 1 indicates that there was a significant difference in students' achievement related to teachers' ethnicity. All of the students (i.e. both field-dependent and field-independent students) with the Mexican-American teachers achieved higher gains in the CTBS achievement

tests. While there was a .2 point difference in achievement for children matched on cognitive style as compared to the mismatched, this was not statistically significant.

A second analysis was performed to examine the relationship between the teachers' cognitive styles and their discrepancies in ranking matched and mismatched children in regard to academic achievement according to grade level. A three-way repeated measures analysis of variance was applied to the data.

TABLE 4
Analysis of Variance for Discrepancy Scores for the Matched and Mismatched Students and Grade Levels for Teachers with Different Cognitive Styles and Ethnic Groups

SOURCE OF VARIATION	SS	df	MS	F	p
AMONG GROUPS					
Grade	36.04	1	36.04	2.07	.16
Ethnicity	15.53	1	15.53	.89	.35
Style	26.26	1	26.26	1.51	.23
Grade $\times$ Ethnicity	1.42	1	1.42	.08	.78
Grade $\times$ Style	.37	1	.37	.02	.89
Ethnicity $\times$ Style	3.26	1	3.26	.19	.67
Grade $\times$ Ethnicity $\times$ Style	11.32	1	11.32	.65	.43
Error 1	486.99	28	17.39		
WITHIN GROUPS					
M	5.00	1	5.00	.24	.63
M $\times$ Grade	3.23	1	3.23	.16	.70
M $\times$ Ethnicity	.42	1	3.23	.16	.70
M $\times$ Style	29.62	1	29.62	1.44	.24
M $\times$ Grade $\times$ Ethnicity	1.13	1	1.13	.06	.82
M $\times$ Grade $\times$ Style	23.23	1	23.23	1.13	.30
M $\times$ Ethnicity $\times$ Style	2.18	1	2.18	.11	.75
M $\times$ Grade $\times$ Ethnicity $\times$ Style	.50	1	.50	.02	.88
Error 2	575.78	28	20.56		

LEGEND — M = Matching vs. Mismatching

Table 4 indicates that there were no significant differences related to the cognitive style of teachers. Also there were no differential effects for grade levels for students who matched or mismatched the teacher's cognitive style. The mean for the pre-test CTBS scores are presented in Table 5 while the mean for the discrepancy scores are shown in Table 6.

TABLE 5

Mean of Pre-test Scores of Matched and Mismatched Mexican-American Students and Teachers of Different Cognitive Styles and Ethnic Groups

	FIELD-DEPENDENT TEACHERS		FIELD-INDEPENDENT TEACHERS	
	MEXICAN- AMERICAN	ANGLO- AMERICAN	MEXICAN- AMERICAN	ANGLO- AMERICAN
	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$
Matched Students	2.73	2.56	2.58	3.03
Mismatched Students	2.70	3.02	2.24	2.94

TABLE 6

Mean of Discrepancy Scores of Matched and Mismatched Mexican-American Students and Teachers of Different Cognitive Styles and Ethnic Groups

	FIELD-DEPENDENT TEACHERS		FIELD-INDEPENDENT TEACHERS	
	MEXICAN- AMERICAN	ANGLO- AMERICAN	MEXICAN- AMERICAN	ANGLO- AMERICAN
	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$
Matched Students	1.53	-.40	.30	1.26
Mismatched Students	-1.06	-1.91	1.51	1.04

DISCUSSION

The students who were with the Mexican-American teachers obtained higher achievement scores than those with Anglo-American teachers. The teachers' ethnicity may make a difference in students' learning. This outcome was unexpected.

One explanation for this finding may be the power of ethnicity. The match of ethnicity between children and teachers may instill in the children a lack of fear of school and school learning. It may also increase their ability to communicate. In addition, the Mexican-American teachers may be retaining and communicating many of their cultural values, such as family relationship, leisure time activities, acceptance of personal loyalty to friends, sensitivity to praise and criticism to their pupils.

It may also be possible that the Mexican-American teachers may have a commitment to raise themselves up or to raise the level of their own ethnic group and may be working harder than the Anglo-American teachers.

Another possible explanation may be the Mexican-American teachers may be incorporating culturally diverse skills into their educational program, and thereby reinforcing the home culture, adapting curriculum materials to make them more relevant to the children's needs, building curriculum based on the children's life and language experiences, and involving the parents in the educational experience. Each of these explanations is possible, but at present we have no way of supporting or contradicting them.

Two similar studies were conducted previously. The sample included Mexican-American and Anglo-American students. The results of the earlier studies were very different from the present study. It is interesting that when Mexican-American and Anglo-American students were considered together, teachers' cognitive styles were a significant variable. Students of field-independent teachers obtained higher scores on the CTBS than did students of field-dependent teachers (Saracho, 1978b). Also the cognitive styles of the teachers did seem to be related to the discrepancy scores. Both field-dependent and field-independent teachers ranked students matched on cognitive style similarly to those students' ranking on standardized achievement test scores. However, field-dependent teachers tended to have greater discrepancy scores, and negative ones, when they ranked mismatched students. On the other hand, field-independent teachers appeared to rank those children who were mismatched more positively than had the field-dependent teachers (Saracho, 1978a).

The results of the present study suggest that further research exploring the relationship between the match and mismatch in ethnicity of teachers and students would be promising to see if other studies support the results of the present study and to seek explanations for such results. Also it would be valuable to modify the study. By varying the characteristics of Mexican-American teachers and Anglo-American teachers in a study, one might explore the possibility that particular characteristics of teachers may account for these results.

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PART IIc

The Cognitive Correlates of Bicultural Achievement Motivation

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INTRODUCTION

Social scientists have spent over twenty-five years attempting to unravel the mysteries of the uniquely human need for achievement. To date, much of the research in this area has focused on the white middle class male. If, however, you happen to belong to an ethnic minority group or are a woman, there remain many more questions than answers.

The purpose of this paper is: (1) to provide a broader bicultural perspective for the assessment and analysis of social and cognitive determinants of achievement and motivation, and (2) to discuss the parameters of change within the Mexican-American community. Since the publication of *The Achievement Motive* (McClelland, Atkinson, Clarke and Lowell, 1953/1976), there has been extensive research to explore the dynamics of achievement-oriented behavior; however, only a modicum of progress has been made to resolve the cultural and sex differences that are recurrent in the research (Veroff, Wilcox & Atkinson, 1953; Rosen, 1959; Ramirez & Price-Williams, 1976; and Kagan, 1977). Although we have come a long way since the day when these differences were ascribed a mere footnote in the work of Atkinson (*et al.*, 1958), misconceptions still persist concerning the Mexican American child's desire to achieve.

One possible explanation for the fact that children from different ethnic groups tend to be classified as low in need achievement (Rosen, 1959; Mingione, 1965; Coleman, *et al.*, 1966; Heller, 1966, 1971; Carpenter, 1967) is that the original assessment procedures of McClelland *et al.* (1953) did not distinguish between the *motive* to achieve and the manner in which this motive is realized. The latter is clearly dependent on culturally approved means and ends. In contrast, the achievement motivation literature emphasizes that

achievement depends on a generalized desire to achieve; it does not deal with the issue of whether or not a culture values the specific achievement behavior. For example, initial studies of achievement motivation conducted with white, middle class males show that high need achievers valued achievement for self (McClelland *et al.*, 1953). In contrast, studies conducted in this area with Japanese Americans showed that high need achievers were more inclined to pursue goals benefitting others, particularly the family. Success for oneself was seen as a sign of excessive immoral egotism (DeVos, 1968). According to Ramirez (1975) and Kagan (1977), the *desire* to achieve is often confounded with the *goal* to achieve. This results in the probability that an individual might exhibit behaviors characteristic of a highly motivated person, only directed to different goals which are acceptable in one culture, but not in another.

The assessment of the achievement motive is further complicated by the fact that there is no one-to-one relationship between motives and behavior. As Kagan (1977) notes, "the same motive may produce different social behaviors for two individuals or groups because of the different strategies they adopt." It is clear, however, that persistence and variation in performance are not the sole property of any one individual in a specific culture. In fact, they are universal behavior patterns assumed to exist to the same degree across cultural groups (DeVos, 1968; Maehr, 1974). The source of variation may be attributed to the incentives or value for achievement motivation, i.e., why does an individual want to achieve (Mulherjee, 1969; Clarke, 1973)? In an effort to conceptualize and assess cross-cultural variation in incentives for motivation, it is useful to address first the concept of biculturalism as it relates to this study.

BICULTURALISM AND THE MEXICAN AMERICAN

The concept of biculturalism relates directly to the reality that many children must confront conflicting home and school environments. Numerous social scientists have viewed this as a negative situation in which the individual is in a state of psychological uncertainty as a "marginal man" (Park, 1928; Stonequist, 1935, 1964). Recent studies are more sanguine about the psychological effects of being socialized within two sociocultural systems (Inkeles, 1974). These studies indicate that cultural orientation and identification depends on situational factors of context, influenced by interaction and expectation. According to Inkeles (1977), the bicultural or "modern man" has the flexibility to move between the two cultures (depending upon exposure to the value systems). Other writers stress the multidimensional nature of the socialization process and the potential benefits accrued to the bicultural individual (Ramirez and Castañeda, 1974; Lambert, Hamers & Frasure-Smith, 1979).

The concept of biculturalism has important implications for the theory of achievement motivation (Castañeda, 1973). A comprehensive cross-cultural assessment of the motive to achieve must analyze the problem in terms of the

relevant sociocultural systems which, in this study, are school and home. Accordingly, achievement motivation is affected by a constellation of situations in which the individual motive states are exhibited. It can be argued that the motive for achievement, i.e., for the benefit of self and/or others, varies as a function of the cultural values which define the achievement setting. The bicultural child may be socialized to achieve for the benefit of others in the home setting, while in the school setting he/she is socialized to achieve for the benefit of self. For example, Ramirez and Price-Williams (1976) found that Mexican-American children tended to be more oriented to achieve for the family rather than for themselves. The same was true of Japanese sample studies by Caudill and DeVos (1956). Thus, this study was formulated to examine the achievement motivation in a culturally-defined setting, rather than the mere identification of children as high or low need achievers.

Bicultural Achievement Motivation Scale (BAMS)

The Bicultural Achievement Motivation Scale was developed to assess and identify the motivating force behind the need to achieve, i.e., achievement for the benefit of self and achievement for the benefit of others. This dichotomy emerged from a series of cross-cultural studies of various social motives: competition vs. cooperation (Kagan, 1977), need for affiliation vs. need for achievement (Atkinson *et al*, 1978), and autonomous and social achievement motivation (Veroff, 1969). The results from this scale, for example, identify the bicultural Mexican American children who exhibit a strong preference for both modes, i.e., achievement for self and others, as a function of a particular setting. This scale also permits the assessment of the absolute as well as the relative strength of each motive.

Language Usage as A Measure of Acculturation

Several studies have emphasized the importance of examining both intercultural and intracultural variation (Lambert *et al*, 1979; Ramirez and Castañeda, 1974). In their intriguing cross-national study of child rearing practices, Lambert *et al* conclude that there is often greater variation within a particular ethnic or cultural group than between such groups. For example, they found many instances where French parents of a particular social class background were more like English, Italian, or Japanese parents of the same social class strata than French parents of a different social class background.

With regard to the Mexican Americans, Ramirez and Castañeda (1974) found significant intracultural variability with regard to socialization practices, cognitive styles, and incentives for achievement motivation. In addition, these researchers contend that the use of Spanish and English can be associated with the degree to which the family or group adheres to the traditional socialization practices with their young. They provide an analysis of the community delineating the parameters of intracultural sources of variability within the Mexican American population. Each community is described in terms of general

characteristics, degree of identification with family, community and ethnic groups and language usage.¹

It is important to note that these classifications are not mutually exclusive. Ramirez and Castañeda (1974) stated that some communities do not fit into any one particular category. Furthermore, not all Mexican American residents of the same community share the same value systems as have been outlined. Yet, the values, socialization goals, and language usage as discussed here are those most frequently identified in these community settings. These characteristics are particularly useful for the analysis of language usage as it relates to degree of individual acculturation and subsequent expression of incentive motivational styles.

Several other studies have focused on the relationship between an individual's verbal behavior and degree of acculturation in a particular society (see Barker, 1974; Friedrich, 1965; Heyden, 1966; Hofman, 1968; Lambert, 1972; Lieberman, 1965; Mackey, 1967; Nahirny and Fishman, 1965; Royal Commission, 1967; and Rustow, 1968). These studies support the theory that language usage within a cultural group is one possible indicator of: (1) degree of acculturation, (2) frequency and extent of intergroup contacts, and (3) other similar dimensions of sociocultural integration between neighboring populations.

In this study, a Language Usage Index was developed to assess the language behavior of the Mexican American children. It is based on a scale devised by Fishman and Terry (1971). In this study, the LUI was used to determine the degree of acculturation of the Mexican American children. It was hypothesized that a relationship exists between language usage and the achievement mode. For example, the traditional or monolingual Spanish speaker would exhibit a stronger orientation to achieve for others than for self. This should be evident, particularly in the case of the Mexican American female in the home setting. Conversely, the dualistic or bilingual individual, would exhibit both modes of achievement motivation. These individuals would best be described as the bicultural Mexican American. The non-traditional or monolingual English speaker would exhibit a stronger orientation to achieve for self. This should be particularly evident in the case of the Mexican American male in the home setting.

THE SAMPLE

The sample of students selected for the 1975 study consisted of 480 elementary school students. A minimum of 20 Mexican American and 20 Anglo American students were chosen from a minimum of two classrooms of fourth and two classrooms of sixth graders from each of two schools in each of three districts. The classrooms were selected if: (1) at least 40% and not more than 60% of the students were Mexican American, and (2) there was no more

than a 40-60% male-female split.

A similar study was conducted in 1979 with 60 Mexican American and 52 Anglo American fifth grade students. There were 57 girls and 55 boys in the sample. These subjects were identified as middle class and attended school in the southwest.

RESULTS

In this section there are three main goals: (1) to review the intent of this study within the context of the main findings, (2) to consider some possible modifications of this study for further research, and (3) to discuss the implications of this study for educational policy.

Intent of the Study

The aim of this study was to examine possible cultural and sex differences in achievement motivation from a bicultural perspective. The problem was approached on two levels. Theoretically, a bicultural model of achievement motivation was devised to explain possible sociocultural origins of differences in mode of achievement (for the benefit of self and others). This model considers the phenomenon of achievement motivation in terms of the values inculcated in the child from two sociocultural systems: Home and school. It identifies the preferred mode of achievement, for the benefit of self and others within the school and home settings. Other factors such as degree of acculturation, number of years in the country were also hypothesized to affect the relative strength of the preferred mode of achievement.

Primary Findings

The results of this research support the hypotheses of a joint effect of sex and ethnic group membership on mode of achievement. The general hypotheses are strongly supported by the results from the Bicultural Achievement Motivation Scale. These results show significant ethnic and sex differences in the relative strength of achievement for the benefit of self and others in the academic and home settings with one exception. These results will be discussed at length in this section.

An overall examination of the mean values reveals a similar pattern for the four groups across achievement settings. The mean values for the groups increased from achievement for self to achievement for others. Consistent with the hypothesis, Mexican and Anglo American females had higher mean scores in achievement for others than the males in both the academic and home settings (See Figure I, Table 1). This finding was reflected in the 1977 study with middle class children (See Figure II, Table 2).

The males from both ethnic groups had relatively similar scores in achievement for self in the academic and home settings. As predicted, they show a divergent pattern with regard to achievement for others in both settings. The Mexican American males show a relatively stronger orientation to achieve

FIGURE 1
STUDY I—MEANS SCORES ON BAMS FOR THE FOUR GROUPS
IN ACADEMIC AND HOME SETTINGS

ACADEMIC SETTING		HOME SETTING	
13-			-13
12-	MAF AAF	MAF AAF MAM	-12
11-	MAM		-11
10-		AAM	-10
9-	AMM		-9
8-	MAM AAM MAF	AAM MAM	-8
7-		AAF	-7
6-	AAF	MAF	-6
5-			-5

SELF	OTHER	SELF	OTHER
INCENTIVES FOR ACHIEVEMENT			

TABLE I
Study 1—MEAN SCORES FOR BAMS SUBSCALES

	ACADEMIC SETTING			HOME SETTING	
	SELF	OTHERS		SELF	OTHERS
MAF	7.4	11.7	MAF	6.4	12.0
MAM	8.0	10.6	MAM	7.2	11.4
AAF	5.8	11.3	AAF	6.5	11.7
AAM	8.0	9.0	AAM	7.8	10.0

MAF—Mexican American Female
MAM—Mexican American Male

AAF—Anglo American Female
AAM—Anglo American Male

FIGURE 2
STUDY II—MEANS SCORES ON BAMS FOR THE FOUR GROUPS
IN ACADEMIC AND HOME SETTINGS

ACADEMIC SETTING		HOME SETTING	
13-			-13
12-			-12
		MAF	
11-	MAF	AAF	-11
10-	AAF		-10
	AAM	MAM	MAM
9-			-9
	MAM	AAM	
8-		MAM	AAM
	AAF	AAF	-8
7-	MAF		-7
		MAF	
6-			-6
5-			-5
SELF OTHER		SELF OTHER	
INCENTIVES FOR ACHIEVEMENT			

TABLE II
Study 2—MEAN SCORES FOR BAMS SUBSCALES

	ACADEMIC SETTING			HOME SETTING	
	SELF	OTHERS		SELF	OTHERS
MAF	7.0	11.0	MAF	6.5	11.5
MAM	9.0	8.2	MAM	9.0	10.0
AAF	7.7	10.2	AAF	6.9	10.9
AAM	9.4	7.6	AAM	8.2	8.0

MAF—Mexican American Female
MAM—Mexican American Male

AAF—Anglo American Female
AAM—Anglo American Male

for others, particularly in the home setting—findings consistent with those of Moore (1970), and Ramirez and Price-Williams (1976) with regard to the strong emphasis placed on achievement for the benefit of the family in the Mexican American home. This difference was present but less apparent for the middle class group.

The Academic Setting

The results supported the hypotheses of significant differences in the predicted direction: Mexican Americans scored relatively higher in achievement for others than the Anglo Americans. Additionally, females from both ethnic groups scored higher for others than the males. These results are consistent with the findings that female achievement efforts are often motivated by a desire for social approval to a greater extent than their male counterparts (Sears, 1962, 1963; Oetzel, 1966; Horner, 1968; Walberg, 1969).

One of the surprising findings of this study is the significant interaction between ethnicity and sex in achievement for self in the academic setting. Unexpectedly, Anglo American females show a relatively lower need to achieve for self than the Mexican American females in this setting. A possible explanation for this interaction is that the majority of all students in the original study were from low SES families. It may be hypothesized that there is a stronger emphasis placed on achievement in school for the Mexican American female than the Anglo female. For the low SES Mexican American family, school may be seen as the only viable means of vertical mobility.

By contrast, in the recent study with middle class children, there was no significant interaction between ethnicity and sex. Anglo American females scored higher on need achievement for self than their Mexican American counterparts. This can be attributed to the higher SES status of the students in the study. Nonetheless, the females from the latter study scored significantly lower than the males in the need for achievement for self in the school setting, echoing previous findings.

This finding is in contrast to numerous studies which stress the low achievement motivation of Mexican American children (e.g., Heller, 1966, 1971). However, they are consistent with those of Anderson and Johnson (1968) who contradict the stereotyped viewpoint that Mexican families place little emphasis on education. They demonstrate that Mexican American children express a stronger desire to achieve in school than their Anglo peers. Moreover, they found that Mexican American children experience as much pressure from their parents to do well in school, complete high school, and attend college as do their Anglo contemporaries.

Additionally, it seems from this study that the socialization of low SES Anglo females to avoid tasks which require competition in schools may be stronger than previously imagined (French, 1958; Horner, 1968; and Lipman-Blumen, 1972). If this is true, it may be predicted that it is more socially

acceptable for the low SES Anglo female to maintain a more passive, non-assertive role in the classroom than the Mexican American female. On the other hand, this pattern may be reversed for females from higher SES groups.

The findings which show significant differences between females and males in the academic setting, are consistent with the general trend of research in this area. However, the conclusions that are drawn from these differences are too often negative and have resulted in a misrepresentation of the achievement motive in females. For instance, Callard (1969) writes:

It is possible . . . that boys are biologically predisposed to develop certain motives, such as the achievement motive, while girls are predisposed to develop other motives, such as affiliation (page 20).

The fact that women show a stronger need to achieve for the benefit of others has been interpreted to mean that women's achievement activities and striving are motivated by the need for approval and affection, while those of men are more autonomously determined by their own internal achievement standards and their need for self-approval (Veroif, 1969). This approach is limited in that women, like men, may also be motivated by their own internal achievement standards and a need for self-approval. It is the incentives which motivate their achievements (i.e., to achieve for the benefit of others) that may distinguish women from men in this regard. The relation between the two modes of achievement is *not* one of lower achievement motivation to higher, but rather one of coordination. Clearly both are operative and must be recognized and fostered in educational environments.

Ethnic and sex differences found in the academic setting may be interpreted as differences in competitive orientations as reflected in preferred mode of achievement. Differences in motivational incentives between Mexican American and Anglo American children have been studied through tasks which required either competition or cooperation. Using an instrument designed to investigate cooperation and competition, Kagan and his colleagues (see Kagan, 1975) have studied the behavior of Mexican, Mexican American and Anglo American children. They found that Mexican and Mexican American children exhibited more cooperative behavior than Anglo American children in a task that rewarded cooperation. When the experiment gave the children a competitive set on the same task, Anglo children were more competitive than either the Mexican or Mexican American children. Thus, the results indicated that the Mexican American children were more highly motivated in the cooperative setting than in the competitive setting. Additionally, more Anglo American girls than boys were rivalrous in the competitive settings. No consistent sex trends have been observed for the Mexican children.

The Home Setting

The results for the home setting show greater similarity among Anglo and Mexican American females and Mexican American males in mode of achieve-

ment than in the academic setting. Consistent with the findings in the academic setting, this can be attributed to the strong emphasis placed on family and home in the Mexican American socialization practices. It is interesting to note the differences between the males from the two ethnic groups. While the Mexican Americans show an increase in the relative strength to achieve for others in the home setting (as compared with the academic setting) the Anglo males show only a slight relative increase in achievement for others in the academic and home settings. Anglo males have the highest score for self and the lowest score for others in the home setting. This is in accordance with the socialization goals for the Anglo American males as depicted in the studies of Atkinson (1958); McClelland *et al* (1953); Rosen (1959); Veroff (1969); and Winterbottom (1958). McClelland concluded as a result of his studies on achievement motivation that:

The data we have to date strongly support the hypothesis that achievement motives develop in cultures and in families where there is an emphasis on the independent development of the individual. In contrast, low achievement motivation is associated with families in which the child is more dependent on his parents and subordinate in importance to them (p. 328).

As previously mentioned, McClelland's studies failed to deal with the issue of whether or not the culture values the specific achievement behavior. Thus, it may be concluded that achievement for the benefit of self is consistent with the desire and goal to achieve for the Anglo American male.

Cross-cultural studies on the socialization patterns for women show an emphasis on the development of achievement for the benefit of others (Haavio-Mannila, 1967; and Hoffman, 1972). Although the Mexican American females had the highest relative need to achieve for others in both achievement settings, the differences between the females from the two cultural groups are less than expected. This was verified in the 1979 study. It is interesting to note that the scores were significantly lower in achievement for others with the middle class children. This may well be due to the fact that there is a growing awareness and sensitivity to the changing role of women. This may be a new trend in seeking a balance of achievement for self and others.

Clearly, however, male and female differences do persist in need achievement. Lipman-Blumen (1972, 1974) attributes these differences to the fact that women develop a vicarious mode of achievement; i.e., women find fulfillment of their achievement needs primarily through the accomplishments of their family. Her research confirms the impact of early socialization which encourages satisfaction of achievement needs through passive identification with the accomplishments of others. Lipman-Blumen found that women transferred the vicarious mode of achievement to their husbands when they married. The survey data showed that:

... a majority of all the women in the sample, both in the contemporary and in the traditional categories sought to satisfy their achievement needs

vicariously. . . . Relatively few seemed to prefer the balanced mode in which the accomplishments of the husband and wife had equal weight (p. 36).

Another interpretation of the achievement motive in women can be found in the work of Horner (1968, 1973). She explains the dynamics of female motivation as an approach-avoidance conflict: While women may have a strong need to achieve, there is a strong fear that achievement will bring with it some form of social rejection from peers, particularly of the opposite sex. Consequently, she concludes that low aspirations in women are due to a prevailing fear of success and the social rejection that may coincide with achievement endeavors.

While these studies do not actually deal with the motive to achieve for the benefit of others, but rather the motive to achieve through the accomplishments and achievements of others, they do suggest the need to look at the sensitive area of socialization practices of the home and school. This issue is one that needs to be handled with caution and understanding in order to avoid possible conflicts between the values of the home and school.

With regard to sex-typing of children, one may ask how much influence the school has as compared with the home. Minuchin (1965) and Minuchin, *et al* (1969) studied children's sex-typed behavior and attitudes, traditional and progressive homes and schools. Their study showed that the progressive homes and schools did not emphasize fixed appropriate behavior; traditional homes and schools did. In a cross-cultural comparison of Chicanos and Anglos, Martinez (1977) found greater sex role differentiation among Chicanos than Anglos. Chicano and Anglo females appeared to be closer in their responses on a semantic differential task than Chicano males and females. These findings are consistent with Study I and II reported here.

Results of Language Usage Index and Bicultural Achievement Motivation Scale

The results from the analysis of intracultural variability in mode of achievement are consistent with those for the entire sample. The scores of the BAMS were more closely related to the sex of the Mexican American students than to degree of language dominance; i.e., sex was the major predictor of the achievement motive. Thus, the likelihood was greater that females would show a significantly stronger need to achieve for others than males in both the academic and home settings.

On the other hand, language dominance showed a similar kind of relationship to mode of achievement within the females and males. The Spanish dominant females did show the highest relative achievement score for others in both settings. The English dominant females were clearly more aligned with the Spanish dominant males in achievement for others than either of the other two female groups. This finding was in accord with the fact that the expression of traditional Mexican-American values may be relatively stable with regard to

language dominance for females and males. While the Spanish dominant females clearly show a relatively stronger need to achieve for others, the Spanish dominant males are clearly more oriented to achieve for others than the Anglo males, particularly in the home setting (Madsen, 1967; Ramirez & Price-Williams, 1975). This is also consistent with the traditional Mexican American values to achieve for the benefit of the family. These findings are in accord with those of Ramirez and Price-Williams (1975) who found that traditional Mexican American children appear to be motivated to achieve for the family. This contrasts with McClelland's results that Anglo American males who exhibit a high need to achieve are oriented to achieve for self.

The findings of this study are in accordance with those for Hawaiian high school males (Gallimore, 1969), women (Lipman-Blumen, 1972), and Japanese and Japanese Americans (Caudill and DeVos, 1956; DeVos, 1968). In general, these researchers have presented evidence of the limited applicability of the McClelland-Atkinson model for achievement motivation to widely diverse cultural groups when factors other than need achievement are taken into account. Castañeda (1974) states that the more acculturated individuals will tend to experience socialization practices which stress independence training as defined by McClelland, *et al* (1953). These individuals may have a limited ethnic identification and show a preference for a competitive reward structure in the achievement setting. This was in fact the case in the 1979 study. The middle class Mexican American children were more closely aligned with their Anglo counterparts. One possible conclusion is that these Mexican American children were more acculturated to the Anglo value system than those in the earlier study. It should also be noted that the Mexican American male appears to be more bicultural than his female counterpart. This is particularly true in the home setting where he expressed both modes of achievement for self and others.

It would appear that the relationship between language dominance as a possible measure of acculturation and mode of achievement depend not only on language dominance but also on the sex of the individual. Although highly plausible, these interpretations must remain speculative until additional investigations concerning language correlates of achievement motivation are conducted. Such research must include a more rigorous investigation of the students' cultural identification. At this point, however, there is not a test which accurately assesses degrees of cultural identification.

EDUCATIONAL IMPLICATIONS AND SUMMARY

What can schools do to provide learning environments which enhance the development of both modes of achievement and avoid sex role stereotyping? There are at least two possible areas which deserve attention.

Material Design and Curriculum Development.

In a review of a dozen popular United States history textbooks used in California, Cortes (1971) found "little in the texts which would contribute to the pride of the young Chicano, but much that could assault his ego and reinforce the concept of Anglo superiority." With regard to sex role stereotyping, girls too often find other females in front of the chalkboard or wrapped in an apron in the storybooks. It is critical that teachers and administrators become sensitized to the magnitude of this problem and that they incorporate materials into the curricula which will generate and enhance self esteem.

In addition there is a need to ensure that the school curriculum emphasizes both achievement for self and others. For example, a student who is more traditional might be more motivated to achieve in a cooperative environment. Children should not be hindered from learning merely because they do not function effectively in one of the two modes.

Evaluation and Assessment.

The numerous problems associated with this issue have been addressed elsewhere (see Samuda, 1975). One of the important factors associated with test performance is motivation. If the results of this study are generalized to the testing situation, students who are more competitive and oriented to achieve for self may excel in this type of activity. The reverse may be the case for the more cooperatively-oriented child. This may be particularly critical in a language testing situation which the child perceives to be a hostile environment. The student is likely to become reticent and the results may be questionable. Teachers should be encouraged to provide students with both cooperative and competitive testing situations to ensure that reliable assessment and evaluation occurs.

These findings may also be useful not only to teachers in the classroom, but to employers and counselors who attempt to guide students into appropriate vocations. There may be a correlation between those individuals who prefer one mode of achievement over another and certain occupations. This is an area for further investigation.

FOOTNOTE

¹Language usage is defined by Fishman (1966) as "who speaks *what* language to *whom* and *when*."

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Part III
Social Development

PART IIIa

The Socialization of Social Motivation in Mexican American Families

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INTRODUCTION

Differences in cooperative and competitive orientations between Mexican American and Anglo children are among the most significant and well-replicated findings of recent cross-cultural research comparing Mexican and Anglo subcultures in American society. Under a variety of experimental conditions and for a number of different populations, Mexican American children have been found to evidence more prosocial behaviors when interacting with a peer than Anglo American children of the same age in the same situation (Madsen and Shapira, 1970; Kagan and Madsen, 1971; McClintock, 1974; Avellar and Kagan, 1976; Knight and Kagan, 1977a; Knight and Kagan, 1977b). These differences have often been attributed to differential familial experiences of the children in the two cultures. However, theoretical and empirical work in the area of socialization of social motives is mostly speculative, and the links between culture-related socialization experiences and the childrens' social motivation have not been empirically investigated.

The goal of the present chapter is to identify and contrast the differential processes of socialization within Mexican and Anglo subcultures that may lead to variations in motivational orientations in children. To accomplish this, we will first define the variables of concern, namely social motivation, socialization and culture. We will then examine the culture specific socialization structures and processes that may contribute to any observed motivational differences between children in the two subcultures.

SOCIAL MOTIVATION

The recent cross cultural research on cooperative and competitive behaviors of Mexican American and Anglo American children utilizes a conceptual paradigm that derives primarily from a game theoretic approach to human behavior. This approach, as set forth by McClintock (1972), assumes that individuals are often motivated by the hedonic consequences of their actions. It further assumes that individuals frequently find themselves in situations of social interdependence, where their actions have consequences both for themselves and for others and vice versa. In such situations of outcome interdependence when individuals are aware that their actions will have consequences for self and other, they respond to the attractiveness of various alternatives not only in terms of the rewards and costs to be attained by themselves, but also in terms of the rewards and costs to be attained by the others with whom they are interdependent. In other words actors' decisions take into account the outcomes to others, as well as the outcomes to self.

Preferences for distributions of outcomes to self and others represent different *social motives*. The following motives are of particular interest to the present discussion:

1. *Individualism*: individual concerned with maximizing own outcomes.
2. *Cooperation*: individual oriented towards maximizing joint outcomes for self and others.
3. *Altruism*: individual oriented towards maximizing other's outcomes.
4. *Competition*: individual concerned with maximizing the difference between own and other's outcomes so as to achieve a position of superiority or minimize position of inferiority.
5. *Aggression*: individual concerned with minimizing other's outcomes.
6. *Equality*: individual concerned with minimizing the difference between own and others' outcomes.

Cooperation, altruism and equality are considered prosocial motives, because the actor is concerned with providing good outcomes to the other. On the other hand, competition and aggression represent attempts to deprive the other of good outcomes.

Social motives, as rules guiding interpersonal behavior, are learned in the course of social life. Their acquisition depends upon the development of cognitive abilities in children, since they involve the performance of "mathe-

matical" operations on one's own and other's outcomes. Hook and Cook (1979), for example, demonstrate that children's equity allocations follow a developmental course which closely parallels the sequence of logico-mathematical operations. McClintock, Moskowitz and McClintock (1977), Avellar and Kagan (1976) find that very young children tend to be entirely own-gain oriented. As they grow older, they evidence behavior suggesting their increased ability to perform more complex operations upon the distribution of outcomes presented to them by investigators. Relative gain motives are expressed earlier than equality or joint gain ones, possibly following a similar developmental sequence in number operations.

Nevertheless, while cognitive development places limits on the timing of learning of social motives, their acquisition and dominance occurs within the context of the major social relationships that individuals enter during their childhood. One major factor that affects the nature of these relationships, and consequently influences the acquisition of social values is culture.

DEFINING CULTURE

Culture is employed as a major explanatory variable in several social science disciplines that are concerned with explaining variations in individual or group characteristics that are associated with membership in different groups or societies. Yet, there exists neither a commonly agreed upon definition of culture, nor a general theory of how culture may mediate differences in members' behaviors. Although it is beyond the scope of the present chapter to fully address these issues, we will briefly attempt to define culture and discuss the criteria by which individuals have been assigned to the Mexican American or Anglo groups in the research to be discussed subsequently.

Historically cross cultural investigations have defined culture by designating a group whose members are assumed to form an interdependent social system, with a common language, shared values, customs and traditions, and who are separated from other groups with more or less clear-cut territorial boundaries (Berry, 1976). This definition was reasonable when cultural anthropologists were studying so-called "primitive societies", which were relatively self sufficient social systems experiencing limited contact with other groups. However, in the contemporary world, we find both within and between societies a web of highly interdependent social systems, whose constituents hold membership across a number of identifiable groups. Thus, any attempt to define unique cultural groups can be quite problematic both in studies of cultures between societies and of subcultures within the same society.

For example, in attempting to define and describe the attributes of a subculture, in the present instance those of the Mexican American and Anglo subcultures, one is confronted with several issues. First, one needs to distin-

guish which of the attributes shared by members of a subculture are cultural and which are non-cultural. For instance, ethnic origin is clearly assumed to be a cultural attribute while educational status is defined as a non-cultural one. Second, one needs to identify which cultural attributes differentiate between the two subcultures. Then, it is necessary to isolate the effects attributed to cultural variables from those which derive from non-cultural ones. Socioeconomic or ecological factors are non-cultural variables that often operate to produce differences in members' behaviors in the two subcultures. Finally, comparisons of subcultures should also take into consideration the existence of attribute variability within each culture.

In the research that will be reviewed in this chapter, the inclusion of individuals in the Mexican American cultural group is normally based upon their sharing a common ethnic origin, as being immigrants from Mexico or descendents of immigrants. It is usually assumed that the commonality in ethnic background implies embeddedness in an ethnic network and is accompanied by similarities in language, values, customs, traditions, and behaviors which differentiate the Mexican American subculture from the Anglo subculture (Cassavantes, 1976; Grebler, et al., 1970; Ramirez and Castañeda, 1974). The equation of culture with ethnic origin can be a reasonable solution to the problem of defining the Mexican American subculture, as long as one controls for other non-cultural characteristics of the populations being studied. There are, for example, several non-cultural variables such as poverty, low educational or social status, rural residence, which are often confounded with cultural ones and result in erroneous attributions of particular behaviors to culture.

In addition to the necessity of distinguishing cultural from non-cultural variables in comparing two subcultures, it is also necessary to be cognizant of the variability of behaviors existing within a given subculture. This within culture variability, as McClintock and Georgas (Note 4) and Inkeles and Levinson (1969) have observed, tends to be ignored in most cross cultural studies, a practice that may lead to stereotypical attributions of behaviors to particular groups. The recognition of this variability is particularly important in research on subcultures that may be in the process of acculturating to other cultures. Some of the research reviewed in this chapter (Kagan, 1977; Ramirez and Castañeda, 1974; Knight and Kagan, 1977a) has begun to assess variability within the Mexican American subculture as well as cross cultural differences between Mexican Americans and Anglos, and to identify the motivational and behavioral consequences of various degrees of acculturation of Mexican Americans to the Anglo culture. This emphasis upon within-culture variability as well as cross-cultural difference, allows for a finer grained analysis of the attributes that characterize the subculture and which influence the individual behaviors of its members.

Culture and Social Values.

Margaret Mead's (1937) classic study of thirteen primitive societies and their social goals, was among the first to address the issue of the relationship between variations in the structures of interdependence within these societies and cultural emphasis upon individualism, cooperation and competition. Mead's analysis points out that cultures differ in their social goals for individuals and groups. Cultures define situations of interdependence so that the achievements and status of individuals become interconnected with those of others. She notes that cooperative goals require a matrix of social relationships which allows individuals to accrue gains from behaviors which maximize the other's outcomes. In the absence of such structuring, concern for the other's welfare takes the form of helpfulness or altruism, but not cooperation.

In sum, Mead suggests that *the social goals of cultures are intimately related to the structure of interdependent relationships which obtain between their members*. As new members are added to the society, they are socialized within familial structures constrained by the culture's social goals. The socialization experiences that obtain in the context of these interdependence structures serve to teach and reinforce the social values of the socializer..

SOCIALIZATION OF SOCIAL MOTIVES

Socialization is the major process through which the culture of a group is transmitted to new members. It entails transmitting to the individual the rules, values and skills necessary for adaptive functioning within a given social group. Successful socialization results in the internalization of common ways of perceiving the world which constitute the group's subjective culture (Triandis, 1972). Although socialization is a life-long process, its most important stages occur during the early years of the child, when the family assumes the major responsibility for transmitting the subjective culture of the group of which it is a part.

Having defined social motivation, culture and socialization, we can now consider in more detail the links between culture, socialization and acquisition of social motivation. Our approach to the cross cultural socialization of social motivation is based upon the following two assumptions. First, the goals and values of the culture or subculture in which the family is embedded influence the structure of relationships that evolve between family members. Second, the structure of interdependence within socializing units affects the acquisition of social motives, because the latter are learned predominantly through interactions in settings of interdependence. Unfortunately, there exists no theory which adequately either describes or explains the processes of socialization of social motives in the family, and the effects of culture upon socialization and its outcomes. To analyze the relationships between familial interdependence structures and the acquisition of social motivation by children, we will posit the

following causal chain: familial structure -> interactions between family members -> acquisition of social motives. Concepts derived from network theory (Bott, 1957; Bronfenbrenner, 1977); social psychological theory (Kelley and Thibaut, 1978; Kelley, 1979) and social learning theory (Bandura, 1969) will be used to help explicate this causal chain.

The family may be conceptualized as a network of interdependent individuals. Family networks have a number of interesting structural properties which affect the socialization experiences of children (Cochran and Brassard, 1979). The present discussion will focus upon those properties which have been found to systematically differentiate Mexican American from Anglo American families: (a) *the strength of interdependence between family members*, (b) *the configuration of relationships within the family*, and (c) *the size of the family*. These properties of family structure are assumed to account for variation within cultures as well as differences between the two cultures in children's socialization experiences and social motives. In the sections that follow, a brief description of cross-cultural differences in each of the above three properties of familial networks is followed by a discussion of their implications for the socialization of social motivation.

Strength of Familial Interdependence

Most surveys of Mexican American and Anglo populations in the southwestern or the midwestern regions of the United States (Grebler, et al., 1970; Farris and Glenn, 1976; Keefe, Padilla and Carlos, 1979; Ramirez and Castañeda, 1974) report significant cross-cultural differences in respondents' attitudes towards their families. Mexican Americans express stronger feelings of family solidarity than Anglos, that is they feel more attached and committed to their families than the latter.

These attitudinal differences correspond to actual differences in integration within familial networks between individuals belonging to the two subcultures. Integration of an individual in an extended family involves close relationships with a large number of relatives, characterized by frequent interaction and exchange of information, services and support. In a survey of Mexican Americans and Anglos in three towns in Southern California, Keefe (1979) observed that Mexican Americans regardless of generation were more likely to be part of a "traditional" extended family than Anglos. This relationship persisted in spite of control for socioeconomic level and geographic mobility. Within the Mexican American groups, she found that those more acculturated to the U.S. and higher in socioeconomic status were more strongly integrated into extended families than those less acculturated and lower in SES. The dependence upon the extended family which characterizes adult relationships originates in a tight bond between family members during the early years of the child. Several empirical investigations of the socialization practices of Mexican

American and Anglo parents have documented the existence of stronger interdependencies between parents and children among the former than the latter (Murillo, 1976; Rusmore and Kirmeyer, Note 6).

A characteristic of strongly interdependent and cohesive social groups is that their members exercise considerable control on each other (Jones and Gerard, 1967; Cartwright, 1965). Such patterns of control are more characteristic of Mexican American than Anglo families. Kearns (1970), for example, interviewed low socioeconomic level Mexican American and Anglo mothers in Texas, and observed that the former restrict the physical mobility of their children more than the latter. Rusmore and Kirmeyer (Note 6) found that Mexican American parents—as compared to Anglo American parents—from similar socioeconomic backgrounds, report that they more often require their children to play close to home; worry more when their children are not home; less often allow their children to bring friends home to play; and more strongly encourage children to play at home with siblings. Steward and Steward (1973, 1974) in a series of observational studies with Mexican American and Anglo American women and children, found that the former tended to exercise more control upon the children's behavior than the latter, and to elicit more compliance.

Lewin (Note 3) in an ethnological study of Latin American immigrant women living in a depressed area of San Francisco, observed that control of the children's physical mobility and activities, and concern with their physical safety was of paramount importance among these mothers. Consequently, these mothers spent most of their time with their children and restricted the latter's interactions with non-family members. The basis for such strong bonding between mothers and children can be attributed to two factors: values originating in the Mexican culture, as well as ways of coping with being a parent in a foreign land (Lewin, Note 3).

The relevance of comparison to peers. One major consequence of tight family relationships is that the exposure of children to peer groups outside the family is restricted. Limited exposure to non-familial peers, in turn, lowers the probability that such peers will be used as referents.

To clarify the relationship between the availability and salience of referents and the development of social motives, it is necessary to briefly describe the social comparison processes that operate in situations of outcome interdependence. Several social psychologists have noted that people obtain information about themselves by comparing their performance and outcomes to those of others (Festinger, 1954; Jones and Gerard, 1967). For example, in game situations, the attractiveness of one's own and others' outcome alternatives depends, among other things, on their informational value for evaluating own and other's performances. That is, the information that one is doing "better" or has "more points" than one's peers can be rewarding. However,

the rewardingness of this comparative appraisal is related to the degree to which the other is a relevant referent for comparison.

Although processes of social comparison have been extensively studied in the laboratory, we know very little about their socialization within the family. One could hypothesize that children, growing up in highly interdependent families that afford them little exposure to peer groups, are more likely to compare themselves to familial referents than to nonfamilial peers. Children growing up in loosely interdependent families would experience greater exposure to non-familial peers and would be more likely to use them as referents for social comparison. Thus, Mexican American children, who are less exposed to non-familial peers, will be less likely to employ them as referents for comparisons concerning the "goodness" of performance and outcomes, than Anglo American children, who are socialized in less tightly interdependent families. Consequently, in game situations, the choice alternatives which stress the comparative advantage of self over others (maximizing the difference between own and other's outcomes) will be much less relevant to Mexican American than Anglo children. This hypothesis of relationship between the tightness of the familial network, children's exposure to peers and their propensity for social comparison with peers is partially supported by a number of empirical findings.

Developmentally, it has been observed that children move from an egocentric orientation to one of social comparison, as others become increasingly salient referents for evaluating outcomes or abilities (Veroff, 1969). Such evaluations often take on a competitive character where each child attempts to obtain more outcomes than the other. For Anglo American children, the process of social comparison begins late in nursery school and increases rapidly (Veroff, 1969), accompanied by increasingly strong competitive behaviors (McClintock, Moskowitz and McClintock, 1977). For Mexican American children, who are less exposed to peers, there seems to be a slower rate in the development of social comparison and competitive responding (McClintock, 1974). Both Anglo American children and Mexican American children tend to become more competitive as a function of age, but competition develops more slowly for Mexican American children emerging after several years of exposure to the public school system. (McClintock, 1974; Avellar and Kagan, 1976).

A number of empirical studies also suggest that the strong bonds between parents and children within Mexican American families are changing as a function of acculturation (Miller, 1978; Satterfield, Note 7; Ramirez and Castañeda, 1974). This change in the degree of family interdependence parallels documented changes in social motivational orientations of Mexican American children of different generations (Knight and Kagan, 1977b).

Finally, in a recent study, Kagan and Knight (Note 2) present data which

are consistent with the hypothesis that social comparison with peers as a means of self evaluation is less relevant to some Mexican American than Anglo American children. These investigators correlated a measure of self-esteem to the proportion of children's competitive vs. egalitarian choices on the Social Behavior Scale. They report that for Anglo American children and third generation Mexican American children self esteem was positively correlated to proportion of competitive choices, a finding which is consistent with prior research linking self esteem to competitiveness (DeVoe, 1977; Vance and Richmond, 1975). On the other hand, for second generation Mexican American children self esteem was negatively correlated to competition suggesting a low relevance of comparative advantage for self evaluation.

The Patterning of Relationships in the Family

Anthropologists F.R.K. Hsu (1972) notes that children's socialization experiences are not affected solely by the strength of the interdependence between family members, but also by the patterning or configuration of relationships in the family, i.e., the relative strength of spouse to spouse vs. parent to child bonds. Unfortunately, there is very little in the literature directly pertaining to the links between the patterns of bonds within the family mother-child interaction and child behavior in either Anglo or Mexican American families. Recently Lewis and Weinraub (1976), Feiring and Lewis (1978), Cochran and Brassard (1979) have introduced conceptual models for analyzing relationships between family systems or networks and child development. However, they have focused on outcomes other than social motives and therefore their formulations are of limited relevance to the present discussion.

Our only source of information about the very complex links between the patterning of familial interdependencies and what the child's socialization experience is likely to be, comes from Lewin's study of Latin American mothers and children in a low income area in San Francisco (Lewin, Note 3). Her study indicates that the first generation Mexican American family is characterized by strong vertical (mother-children) bonds and a weak horizontal (husband to wife) bond. Similar patterns of familial relationships were identified by Satterfield (Note 7), who also found that later generation Mexican American families tend to be more similar to Anglo families where the wife-husband relationship takes precedence over the mother to children one.

Lewin (Note 3) argues that the strength of the mother to children bonds in the first generation Latin American families derives, in part, from the perceived fragility and actual lack of intimacy of the wife-husband ties. This particular patterning of relationships within the first generation family, coupled with the woman's powerlessness and lack of direct access to financial resources, encourages the mother to engage in self-sacrificial behavior in order to consolidate her relationship with her husband and children.

The self-sacrificial behavior of Mexican American women, which in-

volves an explicit concern with maximizing others outcomes with little concern for the possible negative outcomes that may accrue to self, has been also described by several other writers (Murillo, 1976; Boulette Ramirez, 1978; Miller, 1978). It has been associated with the ideology of "marianismo" which encourages women to model themselves after the Virgin Mary (Stevens, 1973). Lewin, however, suggests that rather than being an expression of this traditional ideology, the self sacrificial behavior of many Mexican American women is strategic, and is related to the patterns of power asymmetry within low income immigrant families. Because of low educational and occupational skills, immigrant women have little direct access over resources essential for their need satisfaction. They are isolated and cut off from their support groups which are left behind in their country of origin. They are, therefore, highly dependent upon their husbands for the satisfaction of their needs. Within this context, Lewin notes that "characteristic behaviors associated with motherhood may be understood as a way of solidifying ties with two categories of males, husbands and sons, through whom women hope to have their needs met. The strategy of self sacrifice is also intended to promote loyalty in daughters." (Note 3, p. 171).

Observed self-sacrificial behavior of a model can serve as a major determinant of altruistic behavior in children. Observational learning and imitation have been stressed as major processes through which altruistic behaviors and values are acquired. A large number of laboratory and field studies, inspired by social learning theory (Bandura, 1969) have shown that exposing children to altruistic models has durable effects upon their subsequent behavior, and that these effects generalize across other situations (Rushton, 1976; Mussen and Eisenberg-Berg, 1977; Yarrow, et al., 1973). If, in short term interactions in experimental settings, models can be successful in influencing children's prosocial behaviors, it seems reasonable to anticipate that children who interact on a daily basis with altruistic maternal models will be influenced in a pervasive way.

One can hypothesize then, that the prosocial behavior evidenced by second generation Mexican American children are learned in part from observing the overt concern with the outcomes of other family members as expressed by their mothers. Furthermore, one might speculate that a decrease in the women's dependence upon husbands should be accompanied by a decrease in strategic self-sacrifice. And, if the postulated relationship between maternal self sacrifice and children's prosocial preferences obtains, changes in the mother's dependence should be accompanied by decrease in the children's prosocial behavior. There is indeed evidence suggesting that later generation women are less dependent upon their husbands (Satterfield, Note 7; Tharp, et al., 1968). Hence, it is possible that the observed generational differences in equalitarian and cooperative vs. competitive behavior of Mexican American children in part reflect such changes in the patterns of familial power.

The Effects of Family Size

Surveys have shown that the majority of Mexican American as well as Anglo American children grow up in nuclear families composed of parents and siblings. However, Mexican American children of all generations are more likely than Anglo American children to grow up in families with a large number of children (Grebler, et al., 1970; Keefe, 1979). Grebler, et al., (1970) report that the cross cultural differences in family size persist even when economic factors are controlled. One can assume that in conjunction with the strength of familial interdependence, family size can affect the acquisition of social motives in three ways: (1) through the opportunities it affords children to assume responsible roles; (2) by affecting the ways the family group handles conflict; and (3) by its impact upon the rules employed within the family for allocating resources to its members.

Family size and member responsibility. The forces operating in behavior settings that evoke member involvement have been discussed by ecological psychologists (e.g., Wicker, 1979), who suggest that the maintenance of any setting necessarily requires the performance of several functional roles. That is, settings require that someone plan and execute activities which are central for setting continuance. If there are few qualified individuals to perform such roles, then the setting is understaffed, and all members have to assume more responsibilities for the setting to survive. Large families with several young children are essentially understaffed settings, consequently children tend to be assigned more responsibilities for self, sibling and home care. Whiting and Whiting (1975) observed this phenomenon in their study of six cultures. Children who were living in simpler cultures and in larger families were given more responsibilities and at an earlier age than children who lived in complex cultures and smaller families. Furthermore, the former tended to be more nurturant and giving in their interactions with others, than the latter.

One can thus hypothesize that in understaffed families children become sensitive to the needs and outcomes of others as a result of the responsible roles that they must assume, and that understaffing characterizes many Mexican American families which tend to have large numbers of children. Within such families, children are more likely to learn to perform prosocial transformations, i.e. take into account the costs incurred by others, than children from adequately staffed smaller families. These differences in learned prosocial tendencies, in turn, will be expressed in interactions with peers in experimental settings.

Family size and conflict regulation. In addition to the performance of responsible roles, proper maintenance of group settings requires coordination of member behavior. Problems of coordination become accentuated in situations of strong interdependence when the size of a group increases, and when the group is obliged to subsist on limited resources. Under these circumstances groups develop relatively strict rules regulating member behavior and the

allocation of resources. Thus, highly interdependent, large families living in close quarters tend to establish strict rules of member comportment in order to function in an orderly fashion on a day to day basis (Whiting and Whiting, 1973). In such settings regulation of conflict and aggression is central to successful management of group life. Large scale cross cultural studies, like the six culture study, report that rural, highly interdependent families strongly sanction any expression of aggression on the part of the children. In particular, mothers in these cultures negatively sanction child aggression directed towards them or others (Minturn and Lambert, 1964).

Although there is little evidence concerning the management of conflict in the daily life of Mexican American and Anglo American families, children from the two subcultures have been found to differ systematically in terms of the amount of conflict they engage in with peers or parents. In a role playing study conducted by Hoppe, Kagan and Zahn (1977), Mexican American and Anglo American mother-child dyads acted out situations where a conflict between maternal authority and the child's preference had to be resolved. The results indicate that Mexican American children engaged in less conflict with their mothers, while Anglo American children often contradicted, disagreed with, and spoke back to their mothers.

Another study (Kagan, Note 1) focused upon conflict in peer interactions. Anglo American, Mexican American and rural Mexican children were asked to resolve hypothetical conflicts with peers arising in play situations. The results indicate that Mexican and Mexican American children more often chose responses which were alternatives to conflict, while Anglo American children chose responses which were more conflict oriented. Both these studies suggest that Mexican American children tend to operate under a more cooperative set, and avoid antagonistic responses more than Anglo American children. One can hypothesize that large, highly interdependent families and small less interdependent ones transmit to children different norms about conflict management. These norms guide children's behavior in experimental situations where they interact with peers, and render competitive or prosocial choices differentially attractive to them.

Family size and rules of allocation. In addition to norms for regulating interpersonal behavior, groups develop norms for distributing resources to their members. Egalitarian allocation of resources, for example, promotes member solidarity and group cohesiveness. Groups living in rural settings, where survival depends upon joint contributions, and therefore cohesiveness is important, are more likely to employ such rules than groups in settings of lesser interdependence. The literature suggests that some Mexican American families have retained such values which are part of the heritage of rural Mexico. The fact that Mexican American families tend to be larger than Anglo American families and at the same time have to survive on more limited financial

resources suggests another contemporaneous environmental cause of equalitarian distribution of resources.

Although there is general acknowledgment that children learn rules of allocation in their families, few studies have addressed this issue. Research conducted by the first author (E. McClintock, Note 5) provides some evidence as to the ways in which mothers teach their children rules for regulating their interaction with others. The guiding assumption underlying this study was that mothers teach children rules of interpersonal comportment by introducing them to situations of interdependence, both within and outside the family, which are structured to encourage particular interaction rules. We anticipated that, if confronted with an interpersonal task that could be presented to the children in a variety of ways, Mexican American mothers of different generational backgrounds, e.g. first generation foreign born or later generation native born, would impose different structures upon the task so as to make different interpersonal orientations more or less appropriate.

The study involved 36 Mexican American mothers, who interacted with their preschool child and a peer of the same age, sex, and language dominance as their child. Twenty of the mothers had been born in Mexico (1st generation), and 16 in the U.S. (2nd generation). Each mother was asked to play with the children a game which involved tossing bean bags into a basket. Both children had been previously taught how to toss bags individually by her. The games were videotaped and subsequently divided into rounds which were rated by coders as to the dominant rule employed by the mother to regulate the children's interaction, and distribute access to the game, i.e. turns, between the players. An *individualistic* rule involved structuring the task so that each child performed separately, and little interaction between them was allowed. A *turn taking* rule involved structuring the task so that the children took turns, interacted, and were afforded equal opportunities for participation. A *coordinative* rule was a variant of the turn taking with an emphasis upon synchronization of the children's bag throwing efforts and the achievement of joint outcomes. Finally, a *competitive* rule also involved turn taking, but the mother stressed social comparison of performance and praised superior achievement. Thus, each game rule represented a different task transformation. The proportion of total rounds using an individualistic, turn taking, coordinative or competitive rule by foreign born and native born Mexican American mothers were recorded.

Foreign born Mexican American mothers emphasized turn taking and equal participation while discouraging individualistic action. Alternatively native born Mexican American mothers appeared to have no preferred strategy for coordinating the children's interaction. They were equally likely to encourage individualistic or turn taking games. One can hypothesize that the rules employed by mothers to regulate the interaction between children are transmit-

ted to the children who apply them in other situations of outcome interdependence. Thus, mothers who stress turn taking and equal access to a desired activity will be teaching their children rules of equality and cooperation, while mothers who stress individualistic rules are teaching their children to focus upon own outcomes and disregard those of others.

Although the study described above did not examine the relationship between maternal rule preferences and children's social motives, the observed differences in the rules employed by mothers of varying generational status closely correspond to generational differences in children's social motives documented by Knight and Kagan (1977b). These investigators compared Mexican American children of two generations, 2nd and 3rd, to Anglo American children from the same socioeconomic level. Their findings indicate that the dominant motive of Anglo American children is to maximize the difference between own and other's outcomes. Second generation Mexican American children were predominantly oriented towards minimizing the difference between own and other's outcomes, i.e. establishing equality. This motivational orientation is compatible with the turn taking rule that Mexican born mothers were emphasizing in the study described above. Furthermore, in the Knight and Kagan study, third generation Mexican American children evidenced a bimodal distribution of choices peaking at both the equality and relative gain alternatives. These orientations also correspond to the bimodal distribution of rules emphasized by later generation mothers in the McClintock study.

CONCLUSION

The present chapter examined the links between culture, socialization and the acquisition of interpersonal orientations, emphasizing the prosocial motives learned in Mexican American families. At a time characterized by pervasive feelings of alienation from others and by a lack of concern with their welfare, a better understanding of the basis of prosocial behavior is important both for theoretical and practical reasons. Current social psychological theories have not provided models that account for the learning and expression of prosocial behavior. Consequently, we speculated on the relationship between culturally dependent familial interdependence structures and the acquisition of interpersonal orientations by children, integrating concepts derived from network, social psychological and social learning theories as well as empirical findings from cross cultural research. Variations in size, strength and patterning of familial interdependence in the Mexican American and Anglo American subcultures were examined as plausible antecedents of differences in motivational orientation. The presented hypotheses are speculative and further research is needed to test them. Our analysis of socialization of social motivation, however, suggests several areas in need of future conceptual and empirical work.

First, there is a great need to assess the structures of familial interdependence that evolve within cultures and across cultures; and to understand how

family structures are affected by cultural, economic and social variables. A related need is to understand the ways in which familial structures influence the behavior and interactions of parents and children. We know from a variety of sources (Kelley and Thibaut, 1978; Jones and Gerard, 1967) that the nature of interdependence which exists between actors constrains their behavioral alternatives. However, little is known about the relationship between familial interdependence structures and daily interactions between family members. To better assess the latter, studies of the children's daily life within the family are needed. Psycho-ecological investigations similar to those conducted by Barker and Wright (1951), would provide valuable information about the ways children become socialized in familial and non-familial settings. Furthermore, a systematic mapping of children's socialization experiences would also facilitate studies relating the acquisition of social motives within the family to variations in socialization experience.

The refinement of concepts and methods for assessing family structures and socialization will obviously benefit the study of social development of children. On the other hand, cross-cultural research can play a central role in theory and method development. Because it capitalizes on large differences in familial structure and socialization experience, it can serve as the testing ground for validating emerging theories of socialization.

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PART IIIb

Social Orientation Among Mexican American Children: A Challenge to Traditional Classroom Structures

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INTRODUCTION

A great deal of evidence indicates that Mexican American children do not achieve as much academically per school year as do Anglo American children, which leads to a progressive deficit on standardized school achievement measures. The poorer academic achievement of Mexican American children, however, has been in traditional classrooms which rely on a competitive and/or individualistic motivational structures. Mexican American children, however, when compared to majority children, are more cooperatively motivated. Thus it appears that traditional classrooms which are primarily competitive and individualistic are biased against Mexican American children who come to school with a primarily cooperation social orientation. Recent evidence from several sources supports that conclusion: Mexican American and other cooperatively oriented children perform better in cooperatively structured classrooms. In some cases, the difference is so great that the Anglo American/Mexican American school achievement gap disappears in cooperatively structured classrooms. While there has been no direct test of the relation of social orientation to achievement in various classroom structures, it appears that the superior performance of Mexican American children in cooperative classrooms may be due to their more cooperative social orientation. If so, it can be concluded that traditional, competitive and individualistic classroom structures are systematically biased against Mexican American children and are culturally undemocratic. The bias against Mexican Americans probably takes two forms: Classroom structures which are prevalent in the United States public schools do not provide Mexican Americans equal incentives to make academic progress, and

they systematically pressure Mexican American children to abandon their cooperative cultural values.

The purpose of the present paper is to discuss the nature and consequences of this probable mismatch between the motivational systems of Mexican American children and the motivational systems which are assumed by the structure of classrooms in the United States public schools. The paper begins with a brief overview of academic achievement of Mexican American children in traditional competitive classrooms. It then describes the cooperative social orientation of Mexican American children, and presents evidence of superior academic performance of Mexican American children in innovative cooperative classrooms. The nature and extent of the probable structural bias against Mexican Americans in United States public schools is then discussed.

MEXICAN AMERICAN ACHIEVEMENT IN TRADITIONAL CLASSROOMS

The inadequate performance of the United States public schools in educating Mexican American children has been discussed in detail elsewhere (Carter & Segura, 1979; Vagan & Buriel, 1977; Ramirez & Castañeda, 1974). It is the aim of the present section to summarize the data indicating that the United States public schools are more successful in enrolling and teaching Anglo American than Mexican American students. The inadequacy of typical attributions which blame the Mexican American child for the failure of public schools will also be indicated.

The overall educational attainment of Mexican Americans living in the five southwestern states (Arizona, California, Colorado, New Mexico and Texas—in which the vast majority of the Mexican American population resides) is considerably lower than that of the total population. Examining the median years of school completed by adults 25 years and older, we find achievement is consistently lower for Mexican Americans than for the total population across all five southwestern states, as follows: Arizona: Total Population (TP) = 12.25, Mexican American (MA) = 9.05; California: TP = 12.4, MA = 9.90; New Mexico: TP = 12.2, MA = 9.7; Texas: TP = 11.7, MA = 7.3 (Carter & Segura, 1979).

Of course, some of the discrepancy between Mexican Americans and Anglo Americans in years of schooling is due to the low educational level of recent Mexican immigrants among Mexican Americans. Much of the discrepancy, however, is simply due to the greater drop out or push out rates among Mexican Americans. If we examine the percentage of population enrolled in southwestern schools in 1970 by age, we find that state averages indicate almost full enrollment at ages 7-13 (TP = 97.2%; MA = 96.6%) but that with age there is an increasingly greater drop out or push out rate among Mexican Americans so that by ages 18-19 a considerable gap emerges (TP = 57.2%;

MA = 50.1%). The gap is considerably greater if we consider higher education; among 20-21 year olds 30.5% of the total population is enrolled in school, in contrast to only 19.8% of Mexican Americans (Carter & Segura, 1979). (If we considered only Anglo American children rather than the total population as a basis for comparison, the discrepancy would be far greater; the 30.5% figure for the total population includes Mexican Americans, Blacks, and other minorities as well as Anglo Americans).

The drop out rate in some states and in some districts of some states is drastic. For example, 60% of the Mexican American children who began Texas schools in 1965 did not finish high school (Carter & Segura, 1979). It is estimated by the United States Commission on Civil Rights, 1971, that only 60% of the Mexican Americans who begin United States public schools finish high school; graduation of Anglo Americans is estimated at 86%.

Turning to the question of academic performance of children in school, the data is even more alarming. Overall it is clear that the United States Public School System is a relative failure with regard to the achievement of Mexican American children. Academic performance of Mexican Americans is considerably below majority norms across the United States (Coleman, Campbell, Hobson, McPortland, Mood, Weinfeld, & York, 1966) and it falls increasingly behind with each school year (Kagan & Zahn, 1975; Okada, 1968). Reading is central to the achievement of children in all other subjects, and it is in reading that the achievement gap is greatest. If we examine the proportion of children who are two or more years behind grade level in reading, we find in the fourth grade 16.9% of the Mexican American children fall in that category compared to 6.0% of the Anglo Americans. Successive years of education do not decrease this gap, rather they increase the gap. By the eighth grade 39.9% of the Mexican American children are two or more years behind in reading, compared to 12.8% of the Anglo Americans (Carter & Segura, 1979). These figures are even more remarkable because a higher percentage of Mexican American than Anglo American children have dropped out of school by the eighth grade; if there were no drop out, the gap would be even worse.

A wide variety of explanations of the Anglo American—Mexican American school achievement gap have been offered, most of them blaming the poor achievement of Mexican Americans on attributes of the Mexican American child. The explanations include bilingualism, negative self-concept, negative attitudes towards school, low intelligence, apathy, and low economic class. With the exception of the clear relation of low income level to lower achievement, evidence for these interpretations is lacking (Carter & Segura, 1979; Kagan & Buriel, 1977). The general failure of compensatory programs designed to make up for presumed deficits in the Mexican American child (Carter & Segura, 1979) is further evidence that the school achievement problem may not reside within the Mexican American child.

There is clear evidence that prejudice and lack of understanding and acceptance of Mexican American culture among teachers has been partially responsible for the poor achievement of Mexican American students (Carter & Segura, 1979; Kagan & Buriel, 1977; Ramirez & Castañeda, 1974). The present paper is designed to present evidence supporting a related interpretation: structural bias. Evidence is gathered to support the notion that the very structure of public classrooms is systematically biased against the achievement of Mexican American children. It is suggested that Mexican American children may not perform as well as Anglo American children in public schools because common classroom structures assume competitive and individualistic motivation among students while Mexican American children have a relatively more cooperative social orientation. Thus there may be a mismatch between the incentives offered for achievement in typical classrooms and the motives which are common among Mexican American children.

THE COOPERATIVE SOCIAL ORIENTATION OF MEXICAN AMERICAN CHILDREN

There is a great deal of evidence that Mexican American children are more cooperatively motivated than Anglo American children. A review of the research supporting this conclusion conducted several years ago (Kagan, 1977) indicated that Mexican American children are more cooperative than Anglo American children as assessed by numerous experiments using a variety of assessment techniques including experimental games, projective motives, role plays, and verbal questions. Several issues, however, remained unresolved at the time of that review. Recent research has clarified the nature of Mexican American/Anglo American social orientation differences, has provided evidence about the acculturation process among Mexican Americans with regard to social motives, and has examined the relation of social motives to self esteem.

The Nature of Cultural Differences in Social Orientation.

In the conceptual framework presented by Kagan (1977), a *cooperative social orientation* consists of three major motives: (1) Altruism, a preference to help and protect others; (2) Equality, a preference for equal outcomes; and (3) Group-enhancement, a preference for obtaining gains and avoiding losses for the group. A *competitive social orientation* consists of two major motives: (1) Superiority, a preference for obtaining more than others; and (2) Rivalry, a preference for minimizing the gains and maximizing the losses of others. Finally, an *individualistic social orientation* is characterized by one major motive: Individualism, a preference for obtaining gains and avoiding losses for oneself. A person may be individualistic and also competitive, or may be individualistic and also cooperative. The nature of the motives associated with

the three social orientations and their relation to each other has been discussed fully in Kagan's 1977 review. At the time of that review, while it was clear that Mexican American children more than Anglo American children preferred outcomes with cooperative motives, it was not clear exactly which cooperative motives were at the root of the observed cultural differences. For example, it was not clear if the preference among Mexican Americans for cooperative outcomes in many experimental situations was due to altruism or group-enhancement.

To clarify the nature of the cultural differences in social orientation, Knight and Kagan (1977a) analyzed the verbal responses of children. Children made choices in an experimental game which offered alternatives which satisfied various cooperative and competitive social motives. Analysis indicated that the primary differences among children was along the relative outcome dimension. That is, Anglo American children preferred superiority whereas Mexican American children preferred equality. There were also differences along the dimension of absolute gains for the other. That is, to some extent Anglo American children preferred rivalry in contrast to Mexican American children who expressed motives for altruism. Importantly, it turned out that only the motives of equality and altruism defined the cooperative social orientation of Mexican American children in the situation assessed by Kagan and Knight; no children expressed a motive for group-enhancement. Although the social orientation research to date has consistently documented stronger motives for altruism and equality among Mexican Americans, and does not provide evidence of group-enhancement, the research does not indicate that Mexican American children necessarily do not have a stronger group-enhancement motive as well. In the methods used to date, group-enhancement has not been a salient dimension; if other methods were used, methods which made salient the outcomes for the group, a stronger group-enhancement motive might be found along with the other cooperative motives among Mexican Americans. Regardless of what future research may reveal about the group-enhancement motive, it is abundantly clear that Mexican American children are far more cooperatively motivated than their Anglo American peers.

Acculturation of Social Motives.

To investigate the acculturation process, Knight and Kagan (1977b) contrasted the social motives of second-generation Mexican American children (one or both parents born in Mexico) with third-generation children (one or more grandparents born in Mexico, but both parents born in the United States). An Anglo American comparison group was included as well. The subjects were all students in the same elementary school in a lower income barrio; their parents were all of a similar low income level.

The children were contrasted on the Social Behavior Scale pictured in Figure 1. The Social Behavior Scale provides four distinct alternatives, two

cooperative and two competitive. Each of these alternatives satisfies a unique set of social motives and so social motive differences can be inferred from differences in preference for the various alternatives. The alternative on the far right maximizes the outcomes for the other and so satisfies the motive for altruism. Children choosing this alternative typically say they choose it "to be

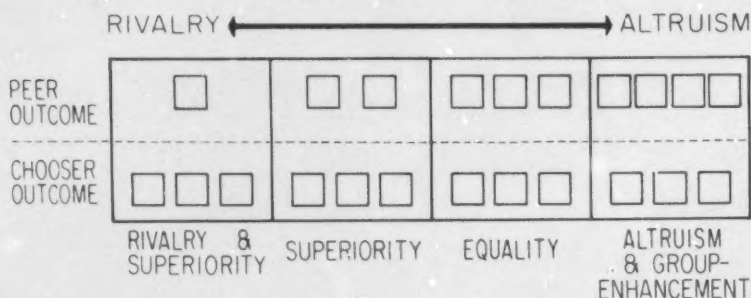


FIGURE 1. The Social Behavior Scale

nice," or "to give him/her a lot." They do not indicate a motive to maximize the outcomes of the group, i.e., to maximize the sum of their own and the other child's outcomes. The next alternative, second from the far right, offers equality, and children typically say they chose that alternative "to be fair," or "to make it a tied score." The remaining two alternatives satisfy competitive motives. The alternative on the far left satisfies the motives for rivalry (Minimizing the outcomes of the other) and superiority (maximizing the difference between own and other outcomes). Children usually say they chose that alternative for reasons related to superiority, "to get more than him or her," but sometimes attend to the rivalry dimension, stating they want the other "to get only one." Occasionally children will attend to both the rivalry and superiority dimensions, stating "I wanted to get more than her and to have her get only one." The remaining competitive alternative satisfies superiority, but is not the most rivalrous alternative; children describe their reasons for choosing that alternative in terms of superiority.

Results indicated a tendency for Mexican American children to acculturate toward the competitiveness of Anglo American children. That is, as pictured in Figure 2, the modal response of second-generation children was equality, followed by altruism. Third-generation children have a bimodal response: rivalry/superiority and equality. Although there is acculturation to Anglo American competitive norms, third-generation Mexican American children remain far less rivalrous than the Anglo American comparison group selected from their same school. The data thus indicate that acculturation does occur, but considerable resistance to assimilation exists, even among children

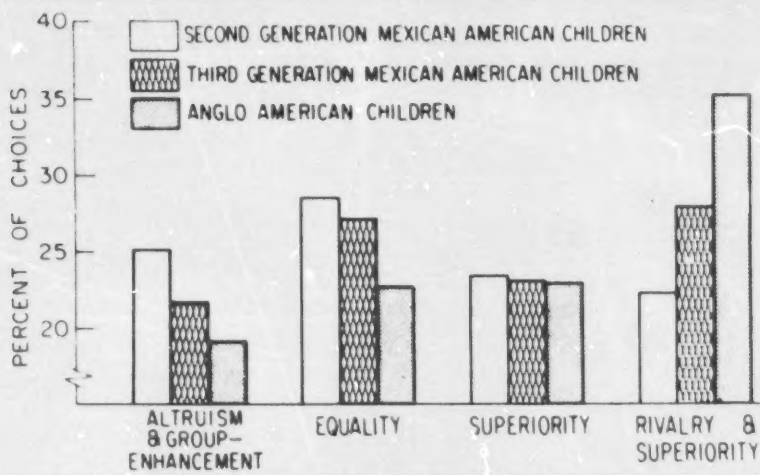


FIGURE 2. Acculturation of Mexican American Children

whose parents were born in the United States and who daily come into contact with Anglo American children both in their school and in their neighborhoods.

Cooperation: A Core Mexican American Cultural Value.

While the evidence is quite compelling indicating that Mexican American children are more cooperatively motivated than Anglo American children, it remains necessary to ask the question of the extent to which Mexican American cooperativeness is a core cultural value. If the argument is to be made that the United States public schools must respect the cooperativeness of Mexican American children and must restructure their classrooms to be more motivating of cooperative children, it is important to establish that cooperativeness among Mexican American children is a function of their cultural values, not a peripheral by-product of a nonessential nature. For example, if cooperativeness of Mexican American children were a consequence of school failure, related to an inability to compete, we might better place our energies into teaching Mexican American children to better compete in existing competitive classroom structures, rather than attempting to restructure competitive classroom structures.

In his review of the cooperation-competition research among Mexican Americans, Kagan (1977) presented evidence that the cooperativeness of Mexican American children is linked to core cultural values common among Mexican American families such as an emphasis on close family ties and

respect for others. Since that review, new evidence has emerged which further supports the conclusion that the cooperativeness of Mexican American children is a core cultural value—evidence about the relationship of cooperation-competition to self-esteem.

Two contrasting hypotheses can be made regarding the relation of self-esteem to cooperation-competition. The first hypothesis is based on the assumption that a positive relation of competitiveness to self-esteem is a cultural universal. In this interpretation it is assumed that among all groups successful competition leads to a high self-esteem, and a high self-esteem leads to a willingness to enter and persist in competition. In this view competitiveness is seen as healthy among all groups and Mexican American Cooperativeness is interpreted as related to an inability to compete and a low self-esteem. In support of this first interpretation is the evidence that a high self-esteem has been found related to competition across many groups (Devoe, 1977; Rosenberg, 1965; Vance & Richmond, 1975). In contrast to this first interpretation, which may be termed the cultural universal interpretation, is a second interpretation which may be termed the cultural values interpretation. In this second interpretation it is simply assumed that the value placed on cooperation or competition varies across cultural groups. In the cultural value interpretation Mexican American cooperativeness is interpreted as related to a core cultural value, not an inability to compete. Instead of being related to low self-esteem, in the cultural values interpretation Mexican American cooperativeness is seen as related to a high self-esteem; Mexican American children are expected to feel positively about themselves if they fulfill the core cooperative values of their cultural group. Only among Anglo American children would cooperation be related to low self-esteem because Anglo Americans have core cultural values on competitiveness and so generally need to be competitive to feel good about themselves.

To test these conflicting hypotheses, Kagan and Knight (in press) examined the relation of self-esteem to cooperation-competition in the Mexican American and Anglo American children of the acculturation study previously described. The results of their study are summarized in Figure 3. Among the second-generation Mexican American children, whose modal response was cooperative, high self-esteem was correlated with high cooperativeness; among Anglo American children, whose modal response is competition, high self-esteem is associated with high competitiveness. Interestingly, among third-generation Mexican American children, who have no clear cooperative or competitive norm, there was no significant relation between self-esteem and cooperation or competition. These results are consistent with the conclusion that children feel good about themselves if they live up to their cultural cooperation-competition norm. The results counter the hypothesis that cooperation among early generation Mexican-American children is related to a sense of inadequacy or inability to compete. Cooperativeness among early

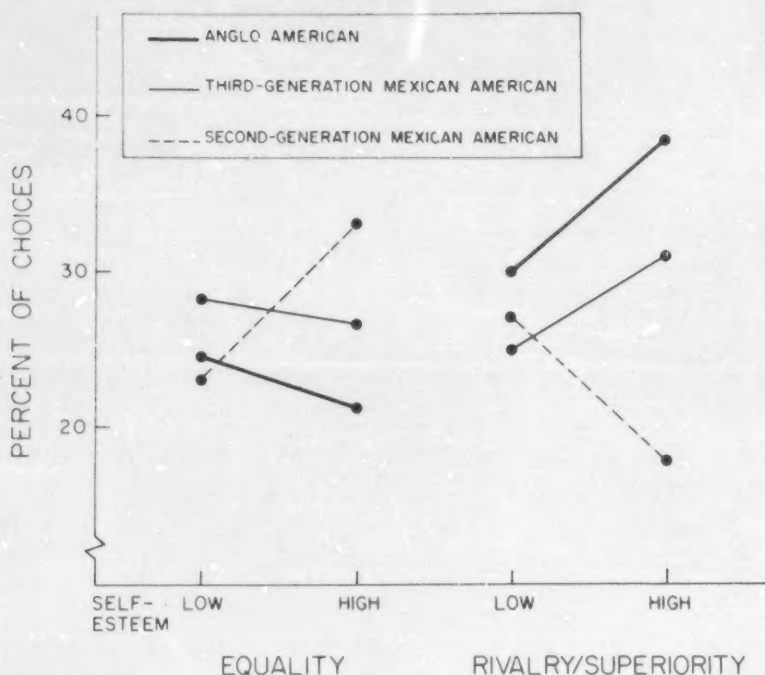


FIGURE 3. Self-esteem and percent of equality and rivalry/superiority choices among Anglo American, third-generation Mexican American, and second-generation Mexican American children (sex and grade collapsed).

generation Mexican-American children appears to be a positive cultural value and those children feel high self-esteem when they are cooperative.

Implications of Social Orientation Research.

The recent research, together with previous cooperation-competition research, has a number of important implications for educators. First, it is clear that Mexican American children have different social motives than do Anglo American children and so the same social outcomes are likely to be differentially rewarding to Mexican American and Anglo American children. Second, these social motive differences are quite robust. Mexican American children of the third-generation who study and play with more competitive Anglo American children daily do not lose their more cooperative social orientation. There is, naturally, a tendency towards acculturation to the Anglo American competitive norms, but there is an equally strong tendency to preserve Mexican American cooperative values. Third, it is relatively clear that the cooperative-

ness of Mexican American children is not a function of a sense of inability to compete; it appears rather to be an expression of a positive cultural value; Mexican American children feel good about themselves when they live up to the cooperative norms of their cultural group. Cooperation is a core cultural value among Mexican American children. In sum, the cooperation-competition differences among Anglo American and Mexican American children are enduring motivational differences which are an expression of positively valued cultural norms. The implications are that competitive classroom structures common in the United States which reinforce competitive values to the exclusion of cooperative values are systematically undermining the Mexican American cultural values and are not likely to produce a high rate of academic success among Mexican American children. A fuller discussion of these implications is reserved until after examining the response of Mexican American children to innovative cooperative classroom structures.

MEXICAN AMERICAN ACHIEVEMENT IN INNOVATIVE COOPERATIVE CLASSROOMS

One direct way to determine the extent to which the competitive and individualistic reward structures common in traditional classrooms are responsible for the low academic achievement of Mexican American children is to compare the achievement of Mexican American children in traditional classrooms with that of Mexican American children in innovative classroom which employ cooperative reward structures. Although it has been recognized for some time that the intensely competitive reward structures which are common in the United States public schools are potentially damaging to the social and emotional well-being of children (Henry, 1963) it is only very recently that cooperative classroom structures have been systematically developed and tested. Unfortunately, there is not much data yet available with which to assess the effects of these cooperative classroom structures on the achievement of Mexican American children. Nevertheless, the data available are extremely consistent with the conclusion that Mexican American children achieve significantly better in cooperative classrooms than in classrooms structured in the typical way.

Typical Competitive Classrooms Structures.

To understand the essence of cooperative classroom structures, it is helpful to examine first the competitive and individualistic assumptions embedded in the structure of the typical classroom. Imagine first a scene with which almost all adults who have attended United States public schools are familiar. A teacher is in front of a class of students; the teacher asks a question. The hands of those students who believe they know the answer shoot up. Now, imagine you are one of the students with a hand up. You hope the teacher will call on you

so you can get her positive attention and that of your classmates. If she does not call on you, which is by far the most probable outcome, and calls instead on another student, you very well may hope the other student fails. Only if the other student does not know the answer, will you have an opportunity to demonstrate your knowledge. The structure of the classroom is likely to produce competition among students; the successes of each student are in part contingent on the failures of others. The typical classroom is a very competitive environment in which many individuals (students) compete for very scarce resources (positive attention of teacher and peers). Grading is also often quite competitive. In classrooms in which only a certain percentage of students can obtain an "A" mark, or in which some form of special attention is given only to the very top students, students may learn to hope for the failure of others as it increases the probability of their own success.

Frankly I am not familiar with many of the changes which have occurred in the public schools in recent years, and have not yet made a systematic analysis of the frequency of different types of competitive, individualistic, and cooperative reward structures which are generally employed. It was therefore with great interest that I attended open house this year at my sons' school. Although my experience in their school cannot be taken as necessarily representative, it leads me to believe that competitive and individualistic reward structures, at least in some classes, are just as prevalent as when I was in school. Let me describe for a moment one of my son's classrooms as I encountered it this year at open house: Above the drinking fountain is a spelling chart which consists of a column of all the children's names and a row of squares following each name. Each week children who get 100% on their spelling test have one square following their name filled in with a blue marker. By the fifth week of school, when I made my visit, some children had five blue squares, others had four, yet others had three, two, one, or none. The teacher informed me that he placed the chart above the drinking fountain because the children often go there during the class period, and therefore it is often seen and so likely to motivate children to work on their spelling. In another part of the room, prominently displayed is a rocket ship with each student's name on it. Some of the rocket ships are higher than others; the height of each ship is determined by the performance of children on their multiplication tables. Quick and accurate performances on the times tables raises a child's rocket ship.

If we examine carefully these motivational techniques, it becomes obvious that they will have a differential effect on competitive and individualistic children than on cooperative children. The competitive child is primarily concerned with obtaining more than others. Thus competitors will be highly motivated to learn multiplication and spelling because learning leads to the kinds of rewards competitive children value. Competitive children can satisfy the superiority motive by getting more blue squares by their names and by getting their rocket ships higher than the ships of other students. Individualistic

children also will be motivated to learn math and spelling because they are motivated to obtain many rewards for themselves; a value is placed on blue squares and a high rocket ship by the teacher, and the individualistic children are motivated to obtain rewards for themselves. But what of the cooperative child? The cooperative child is motivated to obtain rewards for others, to obtain an equal or fair distribution of rewards, and to obtain rewards for the group. Those motives are not directly satisfied by the blue squares by one's name or by a high rocket ship. It seems, therefore, that cooperative children would be less motivated to learn than would be competitive and individualist children in classrooms which are structured around competitive and individualistic reward principles. It would appear that traditional reward structures which assume competitive and individualistic motivation are not designed to be effective with children who come to school with primarily cooperative motives.

Innovative Cooperative Classroom Structures.

In contrast to traditional competitive and individualistic classroom reward structures, cooperative reward structures have been designed to produce cooperative motives and interactions among children. These cooperative classroom structures are also probably more motivating for children who come to school with well developed cooperative motives. There are several distinct cooperative classroom structures which have been researched in the United States public schools. The most well researched of these are Jigsaw, STAD, TGT, and Jigsaw II.

Jigsaw was originally developed by Dr. Elliott Aronson and his coworkers. In this technique the curriculum is rewritten and the classroom reorganized so that children meet in small learning teams in which each child has become an expert in a different aspect of a lesson plan. The children meet also in expert groups which consist of an individual from each learning team, assigned the same piece of curriculum material. The technique is designed so that each child has a unique contribution to make to their learning team, and so each child becomes a valuable contributor to the group. Because children are graded on how much they know of all of the curriculum, they must learn from each other—thus the name “jigsaw:” to succeed the children must put together all the individual pieces of information. There is some evidence that overall children using the Jigsaw techniques learn about as well or better than in traditional classrooms but enjoy several non-academic benefits as well, such as increased self-esteem, and better ethnic and social relations (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978; Blaney, Stephan, Rosenfield, Aronson, & Sikes, 1977; Lucker, Rosenfeld, Sikes, & Aronson, 1976).

STAD, *TGT*, and *Jigsaw II* are cooperative techniques which have been developed at the Center for the Social Organization of Schools at Johns Hopkins University. Robert Slavin and his coworkers have extensively researched the effects of these techniques in over a score of well-designed studies

with good controls. The effectiveness of these techniques is extremely well established: They consistently produce achievement gains equal or better than traditional techniques in many curriculum areas across the elementary through high school grade range. In addition, very marked improvements in ethnic relations, social relations, and self-esteem of children in classrooms using these cooperative techniques has been documented (Slavin, Note 1). The John Hopkins techniques have an important advantage over the Jigsaw techniques: They do not require a rewriting of classroom curriculum; they use existing curriculum and restructure the classroom into small cooperating learning teams. The techniques include between-team competition, and individualized testing and so should be motivating for competitors and individualists as well as cooperators, but the small cooperative team is central to these techniques and they should be particularly effective with cooperative children. Because these cooperative techniques provide opportunities for children to satisfy the cooperative motives of helping, sharing, and working for the group in the process of learning, they appear to supply cooperative children the incentives for learning missing in traditional competitive and individualistic classrooms.

Achievement of Mexican Americans in Cooperative Classrooms.

On the basis of the foregoing analysis it would seem that Mexican American children, and other minority children with a cooperative social orientation, would perform well in cooperative classrooms. Although there is considerable evidence that children in general perform equally or better in cooperative classrooms than in traditional classrooms (Slavin, Note 1), researchers have not yet tested the differential effectiveness of cooperative classrooms for cooperators, competitors, and individualists. Nevertheless, there is some evidence about the differential effectiveness of cooperative classrooms for different ethnic groups. And the evidence to date supports the conclusion that cooperative classrooms are particularly effective for Mexican American and other minority children who share a more cooperative social orientation.

Before presenting the results of those studies, it is necessary to discuss evidence indicating Black children are more cooperative than Anglo American children. At least two studies indicate that Black children, like Mexican American children, are more cooperative than Anglo American children (Richmond & Winer, 1973; Sampson & Kardush, 1965). Black children, however, are not as cooperatively oriented as Mexican American children, at least as revealed by the one study which has made that comparison (Madsen & Shapira, 1970). In that study, unlike the previous studies, Black children were not more cooperative than the Anglo American children sampled. That study, however, employed the Madsen Cooperation Board which measures gross social interaction differences, and which does not distinguish distinct social motives. Therefore, Blacks might have been more cooperative than Anglos if a social motive

measure had been used. In sum, from the little evidence available, it appears that Black students are probably somewhat more cooperative than Anglos, but not nearly as cooperative as Mexican American children. While more research on this issue is needed, for the following discussion I am assuming that Black children are generally at least somewhat more cooperatively motivated than Anglo Americans.

Now, turning to the results of cooperative learning techniques, we find that in cooperatively structured classrooms Mexican American and Black students show the greatest achievement gains. The results are as we would expect if in fact the poorer performance of Mexican Americans and Blacks in traditional classrooms were due to the inappropriateness for those groups of the competitive and individualistic incentive systems inherent in traditional classroom structures. Aronson et al. (1978, p. 117) using the jigsaw cooperative classroom structure examined results for Mexican American, Black, and Anglo American children separately. They found that minority children, who are more cooperatively orientated, made the greatest achievement gains, as follows:

Looking at the test scores by ethnic groups, it was clear that the difference in performance between jigsaw and competitive classes was primarily due to the scores of the minority students. Specifically, the data show that in integrated schools Anglos learned equally well in both jigsaw and competitive classes, but Blacks and Mexican Americans learned much more in jigsaw than in competitive classes.

It appears that the greater cooperativeness of Mexican American and Black children may have placed them at an advantage in a cooperatively structured classroom. Importantly, similar support comes from researchers using a quite different cooperative learning technique, Student Teams-Achievement Divisions, called STAD. Slavin (1977, p. 57) noted:

Further analysis showed that the treatment effect on achievement was largely due to a race x treatment interaction. Black students did much better in STAD than in control.

Thus, Black children, who like Mexican American children tend to be more cooperative than Anglo American comparison groups, tend to profit more from a cooperatively structured learning environment. Thus it appears quite possible that the social orientation and cultural norms of a child interact with the structure of a classroom so that children who have cooperative cultural norms learn most in a cooperatively structured classroom.

STRUCTURAL BIAS AGAINST MEXICAN AMERICANS IN UNITED STATES PUBLIC SCHOOLS

The present review indicates that Mexican American children come to school with a more cooperative social orientation but encounter competitive and individualistic classroom reward structures which are probably effective

incentives for motivating achievement among competitive and individualistic children but not cooperative children. It appears that the classrooms common in the United States public schools are not designed to meet the motivational structures which are an integral part of the Mexican American child's cultural value system. The available evidence strongly suggests, therefore, that there is structural bias which discriminates against Mexican Americans in the United States public schools. After a brief discussion of the notion of "discriminatory structural bias," two probable effects of this bias will be discussed: Impaired academic achievement, and erosion of core Mexican American values.

The Notion of Discriminatory Structural Bias.

It is important to explicate the notion of structural bias and to distinguish it from other forms of discrimination. Discrimination against the achievement of a minority group in public schools may occur for many reasons, including inadequate facilities, lower teacher expectations, teacher prejudices, poor teacher-child rapport, and a mismatch between common teaching styles and the learning styles prevalent among a particular minority group. Structural bias, however, is a notion quite distinct from these other forms of discrimination and can lead to a poor performance among minority students even when those other sources of discrimination are controlled. A well-equipped, well-intentioned, non-prejudiced teacher with high expectations for students of a particular minority group might unintentionally but consistently impair the academic achievement of those minority students by using classroom structures within which are embedded motivational assumptions which do not hold for the particular minority group. In many (probably most) teacher training programs there is little or no consideration of the possible match or mismatch between the motivational systems of students and the incentives offered in typical classroom structures. Competitive and individualistic classroom structures are probably so common that the possibility that they are inappropriate for some children simply has not been generally examined.

The classroom may be viewed as a social interaction setting, and social science research indicates that relatively small manipulations of the situational variables in such settings can have effects far more profound than generally imagined (Milgram, 1969; Zimbardo, 1972). The notion of structural bias, however, is not simply in the tradition of situationism in social psychology. It is based on a more recent conceptualization which has come to be called interactional psychology (Engler & Magnusson, 1976; Magnusson & Endler, 1977). Interactional psychology postulates that the effects of situational variables differ for various individuals depending on the characteristics of those individuals. In this interpretation, we would expect very positive effects of certain classroom structures for some groups, but neutral or even negative effects for other groups. In view of the mounting evidence suggesting an interaction between the characteristics of individuals and situations, it is highly probable

that classrooms of any one particular reward or task structure have positive structural bias for some and negative structural bias for others. The time has come for us to closely examine a variety of classroom structures and determine their differential effects for various ethnic groups.

While the notion of structural bias is much broader than the possible match or mismatch of classroom reward structures and individual motivational styles, that particular form of potential structural bias appears particularly likely to be at least partially responsible for some of the relative failure of United States public schools in educating Mexican Americans. If future research does demonstrate that cultural differences in cooperation and competition lead to differential impact on various classroom structures for different cultural groups, a democratic approach to education will demand that we radically restructure traditional classrooms. It appears quite likely that in two ways traditional classrooms are systematically biased against Mexican American children who are more cooperative in their social orientation: First, traditional classrooms may be biased in favor of higher achievement for majority children; second, traditional classrooms may systematically erode Mexican American cultural values.

Bias Against Mexican American Achievement.

While Mexican American children have a relatively more cooperative social orientation, they are placed in traditional classrooms which are structured around the assumed competitive motivation of children. The structure of such classrooms may well fit the motivational structure of majority children far better than of minority and low income children. Traditional classrooms therefore may not be providing motivational incentives or valued rewards for achievement to Mexican American children. They may be culturally irrelevant for children with other than mainstream competitive values; if so, it is no wonder that the achievement of minority and low income children falls below that of majority children in traditional classrooms.

It is obvious that if children are taught in a language which they do not understand, they will not succeed as well as do children for whom the language is natural. For that reason federal legislation has established a national policy regarding bilingual education to insure that the needs of bilingual and limited English-speaking children are met (c.f., Bilingual Education Act, Title VII of the Elementary and Secondary Education Act of 1965). The notion of structural bias implies that similar legislation may be necessary to insure that children are taught using reward and task structures which are appropriate to their core cultural values. The reward structure of a classroom may be viewed as a nonverbal language for communicating to children the consequences of achievement. If the reward structure of a classroom communicates to cooperative children who value equal outcomes, that they will stand out as superior if they learn a lot, they may actually shy away from learning too much. If,

however, the reward structure associates learning with an opportunity for children to receive high grades together with teammates, cooperative children might be highly motivated toward learning. A reward system which one child understands and likes may be confusing or distasteful to another child. In sum, the present analysis indicates that a culturally inappropriate reward structure may retard learning just as surely as if a child is taught in a language which he does not understand.

Erosion of Mexican American Cultural Values.

The structures of typical classrooms may be biased against students of a Mexican American cultural background in a second important way: typical classroom structures may systematically erode core cultural values. Mexican American children come to school with a relatively highly developed cooperative social orientation which is related to their core cultural norms and values. By being placed in classrooms which are based on competitive and individualistic reward structures, their cooperative social orientation is likely to be undermined to at least some extent. While one side of the acculturation picture is the retention to some extent of cooperative values among Mexican American children over successive generations, the other side of the picture is the partial erosion of those values (Knight & Kagan, 1977b). It may be that classroom reward structures are partially responsible: If competitive and individualistic rewards are associated with achievement in the reward structure of a classroom, children who value achievement may well begin to internalize the competitive and individualistic motives which are assumed. That is, if only competitive and individualistic rewards are offered in a classroom structure, rather than dropping out, a cooperative child may begin to strive for the only available rewards, gradually abandoning core cultural values in the process. While there is no direct evidence available to date indicating that the reward structures in United States public schools contribute to the gradual loss of cooperative values among Mexican American children over successive generations, that is a clear possibility. If it turns out that Mexican American children are better able to retain their cooperative social orientation in cooperative classrooms, we might conclude that experiences in cooperative classrooms are necessary in public schools unless the schools are to continue to systematically erode core Mexican American cultural values.

If, in fact, the reward and task structures common in public schools are systematically eroding the cooperative values of children, we urgently need to redesign our classrooms so they provide at least some cooperative experiences. It is becoming increasingly clear that competitive and individualistic motivation, no matter how adaptive in situations of unlimited resources, are becoming increasingly nonadaptive motivational structures in our society as we face increasingly limited resources and mutual interdependency. Research clearly indicates that Anglo American children and adults persist in nonadaptive

competitiveness when faced with situations in which inhibition of competitive and individualistic behavior would benefit themselves and others (Edney & Harper, 1978; Kagan & Madsen, 1971). It is as if these individuals had not had enough experience with situations in which goal attainment were contingent on cooperation. As those situations are likely to become ever more common in our society, it is necessary that our schools provide students with some cooperative experiences. Only if children have experiences in competitive, individualist, and cooperative reward and task structures can they become discriminating and flexible enough to behave adaptively across the variety of situations they will encounter in our quickly evolving social environment.

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PART IIIc

Mexican-American Children in Educational Settings: Research on Children's and Teachers' Perceptions and Interpretations of Behavior

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INTRODUCTION

The current paper reports part of a large scale program of research which seeks to uncover differences in perceptions and interpretations of behavior on the part of Hispanics, primarily Mexican-Americans, and Anglo-Americans. This research constitutes one of the first attempts to systematically investigate cultural differences between Hispanic students and American teachers and to develop materials for teachers and pupils which are designed to help them better understand the nature of these differences.

There has been some urgency to this undertaking, as there are currently several million Hispanic pupils in U.S. public schools and this number will be increasing steadily in the next decade. For many of these children, school is the first institution of the dominant society with which they come in direct contact. There they often encounter Anglo-American teachers and other school personnel who know little, if anything, about the patterns of attitudes, expectations, and behaviors which Hispanics consider appropriate and desirable, and which vary, in many instances, from patterns which Anglo-Americans find cogent.

It is known that Hispanic children experience a great deal of difficulty in American schools and have the highest drop out rate of any group (United States Commission on Civil Rights, 1975). To cite but one example, according to Lucas (1971) Puerto Rican pupils in Chicago have a 70% drop out rate.

For reasons which will become clear below, it seemed that differences in expectations, perceptions and interpretations of behavior between Hispanic

children and Anglo teachers might be a contributing factor. The current program of research was undertaken to systematically explore the nature of these differences and to develop materials to help teachers and pupils understand them better.

In the first part of this paper I will provide a brief account of the theoretical framework which guided the investigation. I will then describe the procedures we used in the original research and will present some of the major findings. In the last part of the paper I will indicate how the culture training materials were developed and will provide information on replications and extensions of the original research.

THEORETICAL FRAMEWORK

Interpersonal encounters between persons who come from different ethnic and cultural backgrounds can be difficult and may lead to misunderstanding and conflict. The difficulty stems in part from varying predispositions which lead individuals from different cultures to expect different kinds of behaviors in a given situation, and to interpret the same behaviors differently. The particular experiences that persons from different cultural backgrounds bring into social interaction situations can, therefore, create obstacles to effective and satisfactory communication (Albert & Adamopoulos, 1976).

The way in which individuals belonging to a given cultural group characteristically perceive their social environment has been termed the "subjective culture" of the group (Triandis et al. 1972). Studies of subjective culture (Triandis et al. 1972) have shown that for a given cultural group, role perceptions, perceptions of antecedents and consequences of events, and values, often converge. Hence, it is possible to identify "themes" which characterize the subjective culture of a particular group.

When persons from different cultures interact, their assumptions concerning the occurrence and meaning of a particular behavior may vary. Interpersonal differences which are caused by variations in cultural assumptions about, and interpretation of, behavior can be understood in terms of the *attributions* that a person makes about the other's behavior.

Attributions are inferences about the causes of behavior. According to Heider (1958), individuals try to understand the world and render it more predictable by making inferences about the causes of observed behavior. Not content with merely observing, they act in some ways as scientists do and seek to "explain" behaviors by attributing causes and motives to their own behaviors as well as to those of others. For example, when someone gives us a present, we make attributions about his motives. The attributions we make can have important consequences for our own behavior towards that individual: if we see the gift as an attempt to bribe us, we are likely to react very differently than if we see it as a "thank you" for a favor we have done. Thus, depending on

the attributions we make, we may react extremely favorably, in a neutral manner, or extremely unfavorably.

Attributions resemble what Hemholtz described in 1860 as "unconscious inferences" (Boring 1950, p. 308-311). Although they are learned, they become habits of thought that are difficult to distinguish from the perception of the observed behavior (Triandis, 1975). They depend on the norms, affect, roles, and consequences of actions seen as operating in a social situation (Triandis, 1975).

Because cultures exist in different ecologies (Berry, 1976) they develop different conceptions of what behaviors are appropriate and desirable. When individuals from two different cultures interact, they may find that their conceptions differ, and sometimes clash.

In cross cultural interactions misunderstandings occur for at least two reasons: a) we expect the other person to behave differently from the way that he or she in fact behaves; b) we use different standards than that person to evaluate his or her behavior. Clearly what behaviors are (or are not) performed is important in any encounter. However, the *interpretations* given to these behaviors are critical. Thus, complimenting someone can be seen as an attempt to manipulate him or her, providing information can be interpreted as an attempt to misdirect, a gift can be perceived as a bribe, and so on (Albert and Triandis, 1979).

In analyzing interpersonal difficulties traceable to culture, it is, therefore, particularly helpful to focus on attributions. Discrepancies in attributions are more likely when two individuals, P and O, belong to different cultures. Such discrepancies may result in misunderstandings, low interpersonal attraction, rejection, and even overt hostility and conflict. If P is to understand O's behavior, it is helpful, and sometimes essential, for him or her to analyze the situation in a manner that is similar to the way in which O analyses the situation.

The analysis presented above has been suggested by Triandis (1975, 1977) and Triandis et al. (1972). It also has some more general roots in the work of Heider (1958), Jones and Davis (1965), Joes et al (1972) and Kelley (1967, 1972a, 1972b). Based on these ideas a cognitive approach to understanding cultural differences and learning about the culture of another group has been developed. (See Albert and Adamopoulos, 1976, Albert and Triandis, 1979, Fiedler, Mitchell and Triandis, 1971, and Triandis, 1975 for descriptions and reviews.)

The present research constitutes an attempt to utilize some of the ideas developed in the context of culture training approaches, to empirically investigate Hispanic-Anglo differences in perceptions and interpretations of behavior.

DESCRIPTION OF ORIGINAL RESEARCH PROJECT

The original project, undertaken with the collaboration of Harry Triandis,

was designed to investigate attributional differences between Hispanic children and Anglo-American teachers. The research consisted of a number of phases and utilized a variety of procedures which are described below.

Phase I. Interviews were conducted with a sample of 150 ten to fifteen year old Hispanic students and 70 Anglo-American teachers from 15 public schools in a northern state.

Permission for the interviews was obtained from cooperating school principals, district superintendents and relevant boards of education following a lengthy and often delicate process of negotiation in which they were informed of the goals and procedures of the research and appraised of its educational implications. Principals and bilingual coordinators were invited to share with the investigators their experience and knowledge about cultural differences in school settings.

Pupils and teachers from schools in rural, as well as in urban, areas, with large, as well as with small, proportions of Hispanic pupils, and with large, as well as with small, total enrollments, participated in the research.

For this first phase, we sought interviews with four sub groups of Hispanic pupils: Mexican-Americans, Puerto Ricans, Cubans, and Hispanics from other Latin American countries. Whenever possible, we interviewed pupils who had come to the continental U.S. recently. The teachers we interviewed were Anglo-Americans who taught Hispanic pupils.

Participants were interviewed in groups of five, in their dominant language, and were asked to recall instances in which a misunderstanding or a difficulty occurred when they had dealt with a person from the other group (i.e. Hispanic students with Anglo teachers, and these teachers with Hispanic students). Care was taken to put participants at ease and to assure them that the information was strictly for research purposes and was completely confidential. The interviews were tape recorded and lasted for approximately one hour.

Naturalistic observation of classroom interactions and of other interactions in school settings, conducted at a number of different schools, provided important additional information about potential cross-cultural differences.

Phase II. Transcripts from the interviews and notes from the observations were used to generate 146 "critical incidents" in the form of simple stimulus stories. These stories present a wide variety of school related situations and behaviors, and usually depict interactions between a Hispanic pupil and an Anglo teacher. Sometimes parents, principals, Anglo pupils and other Hispanic pupils are also depicted. The following is an example:

Juan is eleven years old and he is big for his age. He is the leader of his class, and is well-liked by the other children and by his teacher, Miss Hall. He is a cheerful boy who seems pretty independent at school. However, he comes to school with his mother every day and some of the other children tease him about it.

Phase III. Sets of stories, each followed by one or more questions (i.e.

Why does Juan come to school with his mother? What does Miss Hall think about Juan coming to school with his mother?), were administered in the form of booklets to samples of fifth to eighth grade Hispanic students (N = 300, primarily Mexicans and Puerto Ricans, but also other Hispanics) and Anglo teachers (N = 62) in ten schools. Control groups of Anglo students (N = 100) and Hispanic teachers (n = 42) were also employed.

Approximately 20 Hispanic students, and 10 to 12 persons from each of the other groups (Anglo students, Hispanic and Anglo teachers), responded to each stimulus story.

Hispanic participants received booklets in Spanish and English and Anglo participants received them in English. Participants were asked to read each story carefully and then to answer in their own words the questions posed at the end of the story. The questions focused primarily on the behaviors, but also on the feelings and cognitions, of Hispanic pupils and Anglo teachers in the stimulus stories. Approximately 50 answers or free attributions were obtained for each of the 246 questions asked.

The following is an example of another story and of two answers or free attributions obtained from teachers (these attributions are presented verbatim):

Rocio was very happy with her teacher, Mrs. Winters. She thought that Mrs. Winters was good to her, helping her in her work, and paying a lot of attention to her. To thank Mrs. Winters, Rocio brought a piece of jewelry to class one day and offered it to her teacher as a gift. Mrs. Winters, however, did not accept the gift and gave it back to Rocio.

Why did Mrs. Winters give the gift back to Rocio?

"Perhaps Mrs. Winters questioned where the jewelry came from or its value."

Por qué devolvió Mrs. Winters el regalo a Rocio?

"La Sra. Winters devolvió la joya porque piensa que darle la atención necesaria a Rocio es parte de su responsabilidad como maestra. Además, no quiere que Rocio y su familia se ponga con gastos innecesarios. Todo esto se lo debía explicar a Rocio de una manera que no la ofendiera."

Translated into English, the latter answer reads:

"Mrs. Winters returned the jewelry to Rocio because to pay attention to Rocio is part of her responsibility as a teacher. In addition, she does not want Rocio and her family to have unnecessary expenses. All of this should be explained to Rocio in a way which would not offend her."

Phase IV. In part A of the fourth phase a total of approximately 12,500 free attributions obtained from the participants in Phase III were examined by a bicultural, bilingual panel of judges. These judges attempted to synthesize the answers obtained by selecting for each question three or four attributions which fulfilled a number of criteria specified in advance, including frequency of mention by each cultural group, frequency of mention by teachers or by pupils, and likelihood of a cultural basis for the attributions. In most instances, the judges tried to select two attributions which they felt were predominant¹;

Hispanic or Latin-American, and two which they considered to be predominantly Anglo or North-American. As an example, the following attributions were selected for the story about Juan presented on page 6:

1. Juan would prefer to come by himself but his mother won't let him.
2. There is nothing wrong with Juan's mother coming with him since it is safer that way.
3. It is not good for him to always have his mother walk him to school.
4. Juan must be very close to his mother.

In part *B* of this phase a final set of episodes, each consisting of a story followed by a question and by three, or more commonly, four, attributions, was constructed. The three or four attributions were presented in a paired-comparison format, so that each attribution was paired with each of the others. Thus, when four attributions were presented, attribution 1 was paired with attributions 2, 3, and 4, attribution 2 was paired with attribution 3 and 4, and attribution 3 was paired with attribution 4. This yielded either six paired comparisons (when there were four attributions) or three paired comparisons (when there were three attributions) for each episode.

There were 176 different episodes and a total of 987 paired-comparisons in the final set. The episodes were randomly assembled into small booklets and their order within the booklets was counterbalanced. In addition, nine randomly selected episodes were used for a reliability check and were presented four times throughout the final set.

Phase V. New samples of fifth through ninth grade students (Hispanics $N = 208$, Anglos $N = 259$) and teachers (Anglos $N = 18$, and Hispanics $N = 18$) were given booklets containing the episodes with the paired attributions. For each pair of attributions they were asked to select the attribution which they felt best answered the question at the end of the story. Each of the teachers rated the entire set of 176 episodes, which contained 987 comparisons. Each of the students rated approximately 8 to 10% of the total set of episodes. Hispanic participants received booklets in Spanish or English and Anglo participants received them in English.

The demographic characteristics of the participants in this phase were as follows: almost all of the Anglo teachers and pupils were U.S. born. The Hispanic teachers came from a variety of countries and most of them had grown up in Latin America. The Hispanic pupils were primarily of Mexican origin, although our sample also included a sizeable number of Puerto Ricans and a few students from other Latin American countries. Most of these students (72%) reported having been in the continental U.S. for less than 2 years; approximately 28% indicated that they had been here longer.

The pupils ranged in age from 8 to 16, with a mean age of 13 for Hispanic pupils and 12 for Anglo pupils. Their grade level ranged from fourth to ninth, with a preponderance of seventh and eighth graders.

RESULTS OF PHASE V OF ORIGINAL PROJECT

The proportions of Hispanic students (HS), Anglo students (AS), Hispanic teachers (HT), and Anglo teachers (AT) choosing each attribution in each of the paired comparisons per episode were obtained. For each attribution, tests of the difference between two proportions were performed for differences between each group of subjects (i.e. AT) and each of the other groups (i.e. HS, HT, AS).

All the possible comparisons between groups of subjects were made for all pairs of attributions, yielding a total of 5922 comparisons. Of these 1158 resulted in *z*s which are significant at the .05 level or higher ($z = 1.96$ or above). This is well above the number which would be significant by chance alone (296, or 5% of 5922). In fact, it is almost four times the number which would have been significant by chance.

A reliability check on the nine episodes which were repeated indicated that across four repetitions, AT and HT chose the same attribution per pair, respectively, 97% and 93% of the time, while both HS and AS did so 82% of the time.

A total of 3948 of the comparisons (those between AT and HS, HT and AT, AS and HS, and AT and HS) were cross-cultural. Seven hundred and fifty-one (751) of these comparisons were significant, and this is above the number expected by chance alone (197). As expected, the greatest number of significant cross-cultural differences emerged when the attributions chosen by AT were compared with those selected by HS: 281 significant *z*s (only 49 are expected by chance).

As an example of differences between AT and HS, let us consider the story about Juan. The question asked was the following:

What does Miss Hall think about Juan coming to school with his mother? Miss Hall thinks that:

1. Juan would prefer to come by himself but his mother won't let him.
2. There is nothing wrong with Juan's mother coming with him since it is safer that way.
3. It is not good for him to always have his mother walk him to school.
4. Juan must be very close to his mother.

When comparisons were made between AT and HS, there were three significant differences out of the six possible comparisons: when choosing between attributions 1 and 2, 83% of AT chose 1, while 76% of HS chose 2 ($z = 3.55$, $p < .001$), for the comparison between attributions 2 and 3, 72% of AT chose 3, while 71% of HS chose 2 ($z = 2.53$, $p < .01$), and for comparison between 1 and 4, 83% of AT chose 1, while 59% of HS chose 4 ($z = 2.58$, $p < .005$). Thus, in this episode while AT preferred attributions 1 and 3, which seem to reflect a cultural emphasis on individualistic self-sufficiency, HS chose attributions 2 and 4, which emphasize the importance of the family in Latin American or Hispanic culture. Notice that this occurred even though the

question referred to what Miss Hall, an Anglo teacher, thought!

We have found 171 instances in which for the *same* pair of attributions (i.e. for attribution 1 vs 2) there were significant differences between Hispanics and Anglos in *two* or more of the cross cultural comparisons (i.e. in comparisons between AT and HS, and between AS and HT). Let us consider the following story to illustrate this point:

Cristina knows very little English. One day her teacher asked her to answer some questions and she told him that she had not understood him earlier. The teacher told her that if she had not understood, she should have told him about it earlier.

The following question was asked: How does Cristina feel? The four attributions which were presented were:

1. Angry
2. Ashamed
3. Humiliated
4. Frightened

When we analyzed the preferences of Anglo teachers and Hispanic students we found that in a comparison between attributions 1 (Angry) and 2 (Ashamed), 100% of HS but only 67% of AT chose attribution 2 ($z = 2.40, p < .01$). Similarly, in the cross cultural comparisons between AS and HT we found that HT selected attribution 2 significantly more than AS did ($z = 2.52, p < .01$). In the two other cross-cultural comparisons (AT with LT and AS with LS) we found a similar pattern of differences, with Hispanics always preferring attribution 2 significantly more than Anglos did. Thus, for this episode we found four instances of significant differences between Hispanics and Anglos in comparisons involving attributions 1 and 2. In each case Hispanics were significantly more likely to select the attribution "ashamed" than Anglos were. The obtained differences show a marked cultural pattern of preference which appears to cut across teacher-pupil status.

As in the example above, we have found many other instances where two or more significant differences between Hispanics and Anglos occurred for a given comparison. In fact, approximately half of all significant cross cultural differences involved this kind of cross cultural consistency.

Two additional sets of comparisons were intra-cultural: AT vs AS, and HT vs. HS. Four hundred and one (401) of these comparisons were significant beyond the .05 level and this is also above the expected 98 for the 1974 comparisons made. Considering intra-cultural differences only, we identified 56 instances in which, for the same pair of attributions, AT chose one attribution significantly more than AS, and HT chose the same one significantly more than HS. Thus, 112 of the 401 significant intra-cultural comparisons appear to cut across cultural lines and to indicate the presence of teacher-student differences.

To summarize the results so far, we generally found four times as many significant differences overall as would be expected by chance.

The greatest number of differences, as expected, was found between Hispanic pupils and American teachers. One indication of this is provided by the finding that, out of 176 episodes used in this phase of research, 141 showed a significant difference in one or more comparisons between Hispanic pupils and Anglo teachers. Some of these differences can be characterized in a general way as follows: Hispanic pupils tended to emphasize the interpersonal aspects of the situation, to indicate a preference for personalized, individualized treatment, to blame the children rather than the teachers in the stimulus stories, to sometimes attribute fear or shame to children in the stories, and to feel that reliance on the family was very important. Anglo-American teachers, on the other hand, tended to emphasize fairness and equality, to focus relatively more on the task, to feel that the Anglo-American teachers in the stimulus stories were uncomfortable with close interpersonal distances and touching, and to favor independence for the pupils. These findings provide some corroboration for ideas on culture-matching strategies for teachers suggested by Ramirez and Castañeda (1974). They also provide support for some of Diaz-Guerrero's (1975) notions concerning the importance of sociocultural premises.

DEVELOPMENT OF ATTRIBUTIONAL MATERIALS

Based on the above analyses, episodes for which there were significant differences between Hispanic pupils and American teachers were selected for inclusion in two volumes (Albert, 1980a and Albert, 1980b) designed to present information about the cultural differences found.

One of these volumes (Albert, 1980a) is addressed primarily to American educators as well as to other persons who work closely with Mexican-American and other Hispanic pupils. The other volume (Albert, 1980b) is addressed primarily to Hispanic pupils.

Each volume presents the stories followed by several attributions used in the last phase of research. The reader is instructed to select the attributions chosen most frequently by members of the other group. Thus, Anglo teachers are asked to select the attributions preferred by the Hispanic pupils. It is likely that these teachers will at first select attributions preferred by their own group. When this happens, the teacher is given information based on the previously collected data, such as that Hispanic students or teachers in our samples did not prefer these alternatives, even though Anglo teachers did. They are encouraged to try again, until they select the attributions previously preferred by Hispanic pupils. At that point they are given feedback outlining some possible cultural bases for the choice made by the Hispanic pupils.

Since the materials are data based, they present a complex picture of the attributional preferences of each group. Since a wide variety of situations are

presented, the attributions are seen to vary in response to each particular situation. In addition, differences in degree as well as in kind of preference can be gleaned from the information presented.

These materials have been utilized in a variety of workshops with Anglo and Hispanic educators. They were developed in the hope that they will contribute to bettering the educational experiences of Mexican American and other Hispanic children.

ADDITIONAL RESEARCH

Two additional lines of investigation have been pursued by the present investigator and will be mentioned only briefly. First, in an attempt to assess possible cognitive, attitudinal and behavioral effects of attributional training with the materials developed above, an evaluation utilizing the materials in modified form has been conducted (Albert, Triandis, Brinberg, Ginorio and Anderson 1979). Anglo-American teachers were randomly assigned to three culture sensitization or culture training conditions: a *role playing* condition in which participants played and discussed the roles of the Hispanic pupils and Anglo teachers in the episodes; a *self insight* condition in which they viewed and discussed video tapes designed to sensitize them to their *own* cultural values (Kraemer, 1969); and a *control* condition in which they discussed with other Anglo-American teachers experiences they had had with Mexican-American and other Hispanic pupils.

A battery of measures was developed, including the following: a) ratings of the training, b) an attributional test containing 20 new episodes, c) observational measures of teacher-pupil interactions, and d) various measures designed to assess teachers' communication effectiveness, pupils' affective responses, and teachers' and pupils' behavioral intentions and expectations.

Results of this investigation indicated that role playing was rated significantly more useful, practical, good, and interesting than the other two kinds of training. In addition, teachers in the role-playing condition performed significantly better than teachers in the other groups on the attributional test designed to tap their understanding of Mexican-American and other Hispanic children.

A second line of investigation has consisted of replications and extensions of the last phase of the original research project. Participants from a different region of the country, and from Black, as well as Hispanic and Anglo backgrounds, have been added. Additionally, parents, teachers-in-training, and university students of Mexican-American and other Hispanic backgrounds, and of non-Hispanic backgrounds, have participated in the research.

A variety of additional studies about Mexican-American children's patterns of perceptions and interpretations of behavior are being undertaken. It is hoped that collectively the various studies described above will add to our knowledge about our Mexican-American children, and will contribute to efforts being undertaken to help them develop their full potential.

NOTES

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